FUTURE

WHY WEDGES REMAIN CRUCIAL—PAGE 38

prosound news

MET Alliance ON
Starting A Studio
PAGE 30

Volume 41 No. 4 www.prosoundnetwork.com April 2019

SSE AUDIO GROUP/GPC MEDIA

MILAN MADNESS—A recent arena tour by 1980s ska heroes Madness saw sound provider SSE Audio Group network the production using Milan AVB—just the latest example of the specification's growing acceptance in the live sound industry. For more on AVB Milan's emergence, see page 36.

Can RF Mics Be Harmonized Globally?

BY CLIVE YOUNG

WASHINGTON, D.C.—Getting the world to sing in perfect harmony may be impossible, but getting its wireless mics harmonized might just happen. Despite a slow-moving process and opposition from some corners, the U.S. pro audio community is trying to get the World Radiocommunication Conference to consider global harmonization of radio frequencies used by wireless microphones—and that's proving to be no simple task.

Harmonizing—or standardizing, if you prefer—wireless microphones' frequencies across all countries would allow the mics to operate using the same radio frequency bands the

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Fast-Paced Lathe

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Brooklyn's Leesta Vall Sound Recordings has cut more than 700 sessions live to vinyl using a mix of modern and vintage gear, including an ancient Presto K8 portable vinyl record lathe.

AoIP Makes Inroads Into Broadcast

BY STEVE HARVEY

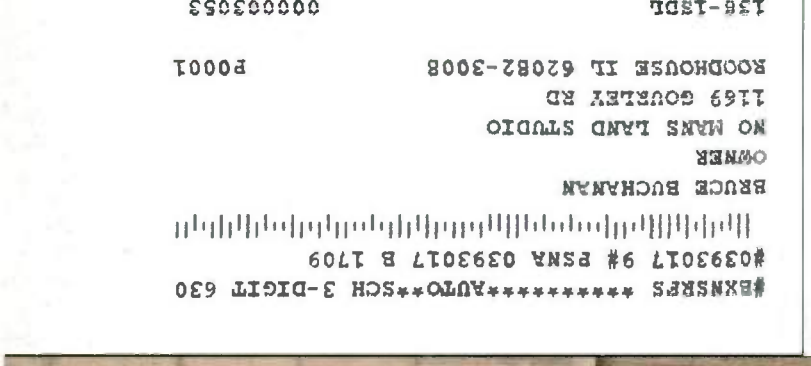
LAS VEGAS, NV—"In the last 12 to 18 months, we've gone past 'IP is the next big thing' to 'How do we make it all work together?' And how do we get from where we are now to the dream?" says David Letson, Calrec's vice president of sales.

Various verticals in the pro AV market jumped onboard the audio over IP bandwagon a considerable time ago, but while the broadcast business is now open to the adoption of AoIP networks, it's not going to flip a switch and change overnight. As a result, says Letson, Calrec is moving its products to AoIP while also enabling customers to bridge existing and new products. "No one so far has adopted a system-wide network. It's not practical to replace everything at once; you've got to transition slowly."

One example is Calrec's ImPulse core, which launched at IBC last September and offers an upgrade to existing consoles. "We take away the old core, put in the new one and they have an IP-based system," says Letson.

"It's hard to find a new piece of gear for broadcast that does not have one or more IP interfaces and pro-

(continued on page 48)



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Augspurger on the Move

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Now in his 90s, and into his seventh decade in the industry, acoustician and audio engineer George Augspurger is still busy, with a number of studio design projects currently underway in the Los Angeles area and another in Peru.

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NAB Show to Reset Schedule in 2020

BY PAUL MCLANE

LAS VEGAS, NV—In 2020, the National Association of Broadcasters will change the basic schedule pattern of its annual spring show. The exhibit floor will be open Sunday, April 19, through Wednesday, April 22, with booths opening at noon on the first day. The schedule of this year's show is not affected.

It is a tweak likely to create a lot of buzz among the attendee and exhibitor community at the convention this April. It's a big operational change, the first modification in the show's basic weekly structure in years if not decades, and will have impact on both show planners and those who attend.

Attendance has been in the range of 90,000 to 100,000 in recent years, and there are many thousands of people more who build staff plans, travel costs, meetings, shipping arrangements and other major decisions on assumptions about a basic Monday to Thursday format.

As the show has evolved, observers say, the weekend prior has become a much more popular time to hold both official and non-official affiliated events. A number of technical and educational sessions take place over the weekend, for instance, and a few non-NAB events start as early as the prior week. Meanwhile, the final Thursday of the show saw apparently slower booth traffic in recent years.

On the session side, the only current Thursday programming is for the Broadcast Engineering and IT Conference. Plans for the BEITC schedule next year have not been finalized, an official said.

The NAB announced that its annual convention, seen here in 2018, will shift days next year.

NAB executive vice president of conventions and business operations Chris Brown said the decision to change the overall schedule was based on feedback from the NAB Show "community at large."

"As the industry continues to undergo enormous change and disruption, we remain committed to evolving along with it to deliver the best value for exhibitors, attendees and partners," he stated in an announcement. He said the change provides people an opportunity to attend outside of the work week, and aligns exhibits with the show's existing education programs.

NAB Show
www.nabshow.com

In-Ear Monitor Patent Battle Ends

BY CLIVE YOUNG

NEW YORK, NY—On Feb. 20, the U.S. Court of Appeals for the Federal Circuit upheld a 2017 decision in 64 Audio's favor concerning a patent infringement lawsuit filed against the company by JH Audio. Both companies manufacture in-ear monitor systems.

Jerry Harvey Audio Holding (JH Audio) originally filed against 1964 Ears LLC (64 Audio) in December 2014, claiming infringement of JH Audio's patent for a dual high frequency driver canalphone system (U.S Patent No. 8,897,463).

During the trial, 64 Audio sought an *inter partes* review of the dual high frequency driver claims; in July 2017, the U.S. Patent Trial & Appeal Board's decision ultimately went in 64's favor, finding the patent's claims unpatentable, deciding that the patent combined existing inventions in an obvious way.

Following the appeals process, the court reviewed and affirmed the original 2017 decision. JH Audio was represented by Daniel Ravicher of Ravicher Law Firm (Coral Gables, FL); 64 Audio was represented by Delfina Sarah Homen of Brooks Quinn LLC (Kirkland, WA).

JH Audio was founded in 2009 by Jerry Harvey, a former monitor engineer who developed early IEMs for drummer Alex Van Halen while on tour in the 1990s. The result led to Harvey founding Ultimate Ears, which was acquired by Logitech in 2005.

64 Audio (formerly 1964 Ears) was started by sound engineer Vitaliy Belonozhko, who has worked with musicians and production companies in the Northwest for more than a decade.

JH Audio
www.jhaudio.com

64 Audio
www.64audio.com

briefs

CAS Honors Audio Pros

LOS ANGELES, CA—The Cinema Audio Society (www.cinemaaudiosociety.org) held its annual awards ceremony on Feb. 16. Along with awards presented in seven categories for Outstanding Sound Mixing Motion Picture and Television and two Outstanding Products, production sound mixer Lee Orloff, CAS, was recognized with a CAS Career Achievement Award. Additionally, Steven Spielberg received the CAS Filmmaker Award in a presentation that included remarks by production sound mixer Ron Judkins and re-recording mixers Gary Rydstrom, CAS, and Andy Nelson, CAS. They were joined in the presentation by actor and director Bradley Cooper. The full list of winners can be found at www.prosoundnetwork.com.

MPSE Winners Named

LOS ANGELES, CA—The Motion Picture Sound Editors (www.mpse.org) held its annual awards ceremony on Feb. 17, presenting sound editing awards in 23 categories across feature films, long-form and short-form television, animation, documentaries, games, special venue and other media. Director, screenwriter and producer Michael Mann presented the 2019 MPSE Filmmaker Award to director Antoine Fuqua, while this year's MPSE Career Achievement Award honored supervising sound editor Stephen H. Flick. The full list of winners can be found at www.prosoundnetwork.com.

A-T Extends 600 MHz Program

STOW, OH—As various telecom companies continue to build out their next-gen systems nationwide, Audio-Technica (www.audio-technica.com) has extended its existing trade-in program for 600 MHz wireless systems through March 31, 2020. The move comes as the industry continues to move away from wireless systems operating in the 600 MHz band (614 to 698 MHz), mandated by law as a result of the ongoing FCC wireless spectrum reallocation.

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Four-time Grammy-winner Larry Klein recently netted his third nomination for Producer of the Year (Non-Classical); now he's reinventing the music of Jacques Brel as he produces a new tribute album.

Studio Showcase: Niles City Sound . . 20
Niles City Sound may be the studio that helped launch the Grammy-winning career of throwback R&B singer Leon Bridges, but the Ft. Worth facility is determined not to be defined by that one project.

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Ensconced in a Los Angeles neighborhood known as the Jungle, beach-side Shindig Music + Sound recently marked its second anniversary by expanding its space and services, unveiling a new 5.1 mix suite and production/green room.

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Bose's ArenaMatch loudspeaker development project began with a series of interviews with AV system designers and integrators for outdoor sound reinforcement systems in key market segments—professional sports stadiums, outdoor entertainment areas and higher-education sports facilities—each discussing common problems with existing systems.

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With graduation just around the corner, recording legend Elliot Scheiner looks at the post-audio-school options for the next generation of studio engineers and suggests looking into an entrepreneurial career path.

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Milan AVB networking is seeing growing acceptance within the live sound industry as manufacturers and audio providers coalesce around the emerging specification.

Close to the Wedge 38
In-ear monitors are ubiquitous these days, as they are less likely to damage users' hearing and also result in a quieter stage, but just because wedge monitors are on the floor, that doesn't mean they're down for the count.

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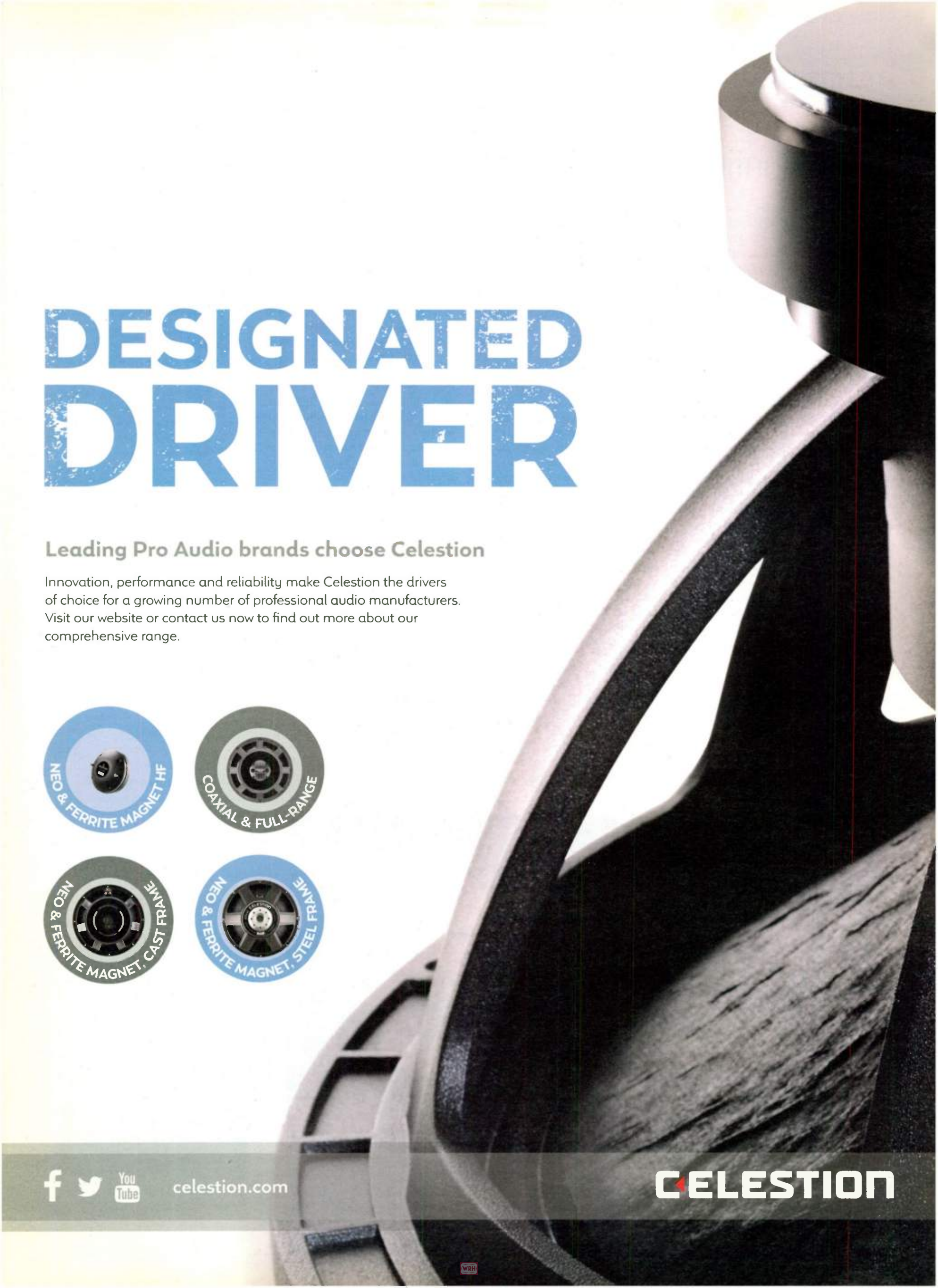
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Recounting a Remarkable Career

I spent the last few days reading *Al Schmitt On the Record: The Magic Behind the Music*, and let me tell you, the revered engineer's new autobiography weaves its own spell. The recipient of more than 20 Grammy Awards, Schmitt also has two Latin Grammys, a Recording Academy Lifetime Achievement Award, a star on the Hollywood Walk of Fame (the first ever for an engineer) and more than 150 Gold and Platinum recordings to his credit. Those were earned while working with generations of the musical elite, from Frank Sinatra and Henri Mancini, to Paul McCartney and Barbra Streisand, to Dr. Dre and Lady Gaga. You can also find his name on albums by Bob Dylan, Sam Cooke, Toto, Diana Krall, Steely Dan, Luis Miguel, Norah Jones, George Benson, Natalie Cole, Quincy Jones, Jackson Browne, Neil Young, Tony Bennett and Jefferson Airplane, to namedrop only a few. That's plenty of material for a book, and Schmitt doesn't disappoint as he recounts not only his epic career, but what he's learned along the way.

Written with Maureen Droney, managing director of the Recording Academy's Producers & Engineers Wing, the book has plenty of recording insights, gear opinions and technical tips, but it often takes a broader view, looking at what's required on a personal level to stay at the top of your game for decades. As a result, while there's discussion of how Schmitt benefited from meditation, for instance, he also doesn't shy away from difficult topics like what led to attending his first AA meeting nearly 30 years ago.

Schmitt starts the book with a bang, recalling the session that launched him into the big time. As a 19-year-old studio apprentice in Manhattan, he learned on the job until he was permitted to record demos on his own. Things went fine until a weekend session, booked under the name "Mercer," turned out to be Duke Ellington and his big band, which included greats like Billy Strayhorn and Johnny Hodges. Panicked, Schmitt tried to make the most of the eight inputs available, setting up mics using sketchy placement diagrams he'd hastily drawn while assisting on other sessions. He told Ellington "I'm not qualified" so often that eventually the jazz great had to calmly reassure him that he could do it. And he did.

Ellington wasn't the only one to encourage Schmitt over the years, and now the producer/engineer himself takes on a mentoring role with the book, showing readers via his stories how to prep, run and maintain control of a session. (One tale, regarding Al Jarreau, is a laugh but also particularly instructive.) Throughout, he shares advice freely and keeps it mighty real. Case in point: In a section titled "Top 11 Things Assistant Engineers Need to Know," topics range from being well-versed in DAWs to looking after personal hygiene, because "nobody wants to spend 10 or 12 hours in a small control room with someone who smells like an old goat."

Schmitt often gets satisfyingly technical, yet never turns his autobiography into a textbook. When he digs deep into microphones, you learn his preferred choices for different instruments as he discusses ideal placement, polarities, leakage, Decca trees, tips for recording vocals and more. Elsewhere, he takes apart his mixing process and philosophy, and in one of three appendices unearths recording session layout diagrams detailing how studios were set up for seven of his most famous projects. But just as much gold can be found in chapters like "Life's Been Good to Me So Far: Life Lessons and the Secrets to My Success," in which Schmitt shares insight about how to conduct yourself both in the studio and in life, speaking from hard-won experience.

Schmitt and Droney have written an expansive, wide-ranging, ambitious book that does far more than merely catalog the past. As a result, *Al Schmitt On the Record* is one of those tomes that belongs on the shelf in every studio, whether for quick reference or inspiration, destined to acquire multiple dog-eared pages and its share of coffee cup rings on the cover from repeated reads over the years. It's that essential.

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DCR Nashville Dives into L-Acoustics

NASHVILLE, TN—DCR Nashville changed its name from Digital Console Rental a few years ago to highlight how it had expanded its focus beyond live mixing desks. Underscoring that change, the company recently loaded up on L-Acoustics loudspeaker systems.

It's a sizable purchase comprising 32 K2, 24 Kara and 32 Kiva II line source array enclosures, 16 KS28, eight K1-SB and six SB15m subs, and a dozen coaxial X15 HiQ stage wedges, rounded out by nine LA-RAK II touring racks and a pair of the manufacturer's new P1 processors.

DCR Nashville project manager Chris Wilhelm, owner Howard Jones, account manager Shane Hamill and general manager John Schirmer with part of their new system.

Upon taking delivery of the new systems, L-Acoustics touring application engineer Vic Wagner spent four days at DCR Nashville bringing the company up to speed on its new gear. "Vic trained our team on all system aspects, from design using Soundvision to the use of LA Network Manager, to optimal deployment of K2, Kara and Kiva II," said DCR Nashville general manager John Schirmer. "When he left, most of our crew had become certified system technicians. Vic was great to spend time with, extremely patient and tremendously knowledgeable."

DCR Nashville is offering AVB system deployment upon request, hence the addition of two L-Acoustics P1 units. "P1 has the ability to provide a variety of versatile and useful system functions as well as distribution protocols," Schirmer said. "We are using the P1 on the front end of our P.A.s to offer our systems techs a deeper processing level to the system by incorporating the EQ station along with LA Network Manager. Whether a client wants AES, analog or AVB, we have them covered and can deploy a system that best meets their needs."

DCR owner Howard Jones said, "The addition of L-Acoustics to our inventory offering will provide us with increased opportunities, not only in support of our existing clients, but it will also introduce our company to a broader client base."

DCR Nashville
www.dcrnashville.com

L-Acoustics
www.l-acoustics.com

NSI Industries, Platinum Tools Merge

HUNTERSVILLE, NC—North Carolina-based NSI Industries has merged with Platinum Tools of Newbury Park, CA. NSI creates electrical and control products, while Platinum Tools produces datacom products for the preparation, installation, hand termination and testing of wire and cable.

Founded in 1997, Platinum Tools employs approximately 40 people and will continue to operate out of Newbury Park; its portfolio includes cable management solutions, structured wiring products, tester kits, cutters, crimpers and other products for electrical, industrial, security, audio/video, commercial, residential, datacom and telecom applications.

"The Platinum Tools product portfolio is entirely complementary to our NSI electrical solutions and will add immediate category depth," said G. R. Schrotenboer, chief executive officer, NSI Industries. "Platinum Tools shares our dedication to offer the best-quality products designed for efficient and easy installation, while bringing economic value to contractors, electricians and installers."

NSI Industries
www.nsiindustries.com

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TEC Awards Opens Call for Entries

ANAHEIM, CA—The NAMM TEC Awards council has announced a call for entries for the 35th annual NAMM TEC Awards. The awards ceremony will take place during the 2020 NAMM Show on Jan. 18 in the Hilton Anaheim Pacific Ballroom. The awards program includes 23 Technical Achievement and eight Creative Achievement categories.

Entries will be reviewed by a group of industry experts, who will develop a final slate of nominees that best represent superior accomplishment in their respective fields. The nominees for all NAMM TEC Award categories will be announced at July's 2019 Summer NAMM Show in Nashville, TN.

Presented annually during the NAMM Show by the NAMM Foundation, the NAMM TEC Awards recognize the individuals, companies and technical innovations behind the sound of recordings, live performances, films, television, video games and multimedia.

At this year's ceremony, the Hall of Fame Award, which recognizes audio pioneers as well as accomplished producers and audio technicians, was presented to Skywalker Sound's Leslie Ann Jones, while Peter Frampton received the Les Paul Innovation Award, an honor that recognizes musical artists whose work has exemplified the creative application of audio technology. Earlier in the day, historic audio inventions were inducted into NAMM's TECnology Hall of Fame.

NAMM TEC Awards Entry Form
www.tecawards.org/call-for-entries

Herbie Hancock presented the Hall of Fame Award to Skywalker Sound's Leslie Ann Jones at this year's TEC Awards.

Anchor Audio Gets New Identity

SAN DIEGO, CA—Anchor Audio has updated its brand identity, the first change to the brand's look in more than 40 years. The refreshed appearance is intended to reflect Anchor Audio's evolution in terms of its organization and products. It has been implemented in an effort to better serve channel partners and customers.

The new brand identity made its first appearance last year with the launch of the Series 2 product line. The initiative also led to a top-to-bottom redesign of the Anchor Audio website, along with the creation of an updated company logo, graphic communications toolkit and a new brand voice.

According to Anchor, the move came after extensive market research, data analysis and customer feedback. "Not only did we want an overall updated 'look,' we also wanted our personality as a company to be portrayed in our brand: transparent, honest and, above all, simple and reliable," said Bethany Dineen, Anchor Audio director of marketing.

"Our partners and customers will not only notice a complete update and easy-to-navigate redesign of our website, but a consistent brand voice across all of our communications that captures the energetic and authentic culture of our company. Our rebranding efforts now accurately and positively represent the Anchor Audio promise: to provide superior audio with unmatched simplicity and reliability."

Anchor Audio's updated logo.

Anchor Audio
www.anchoraudio.com

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Neve

www.ams-neve.com

Point Source Audio Spins Off Wider Pro

PETALUMA, CA—In addition to manufacturing microphones, Point Source Audio has long handled North American distribution of brands such as Digigram and AuviTran. Now PSA has formed Wider Pro, a company that will represent those lines to the broadcast industry.

Point Source Audio will continue to represent its own products to all markets, including the broadcast sector, but moving the brands is something of a necessity, Point Source president James Lamb explained. "I have worked with the teams at both Digigram and AuviTran for almost two decades, and with the pending announcements of new products from both companies, we will be equipped to move into the next phase of growth under the Wider Pro company."

Wider Pro will be based in Petaluma, with Lamb and Yvonne Ho, vice president of sales and marketing at Point Source Audio, acting as its principals. Digigram, based in France, develops digital encoding and streaming links, and manufactures sound cards, audio processing software and IP audio codecs. Meanwhile, AuviTran, also in France, manufactures broadcast products such as the Audio ToolBox, a system intended to simplify IP networking when dealing with multiple protocols.

"Taking care of our customers will always be our first priority, and so we have been and will continue to add highly customer service-minded sales and marketing members to both the Point Source and Wider companies," said Ho. The principals stress that this pivotal change is intended to accelerate the pace of bringing new products to market while maintaining focus on customer service and support for all the brands.

Yvonne Ho and James Lamb have co-founded Wider Pro as a spin-off of Point Source Audio.

Point Source Audio
www.point-sourceaudio.com

Wider Pro
www.widerpro.com

Oscar Sound Winners Announced

DAN MACMEDAN/GETTY IMAGES

John Warhurst and Nina Hartstone, winners of Best Sound Editing award for *Bohemian Rhapsody*, pose in the press room at the 91st Annual Academy Awards at Hollywood and Highland on Feb. 24, 2019 in Hollywood, California.

BY STEVE HARVEY

LOS ANGELES, CA—*Bohemian Rhapsody* won more Oscars than any other film at the 91st Academy Awards ceremony on Feb. 24, taking home four, including for Best Sound Editing and Best Sound Mixing.

In addition to the Queen biopic's two sound awards, Rami Malek won the Best Actor Oscar for his portrayal of Freddie Mercury, and the film's John Ottman won for Best Film Editing. Queen, fronted by former *American Idol* contestant Adam Lambert, who has been the band's vocalist for the past eight years, kicked off the Oscar telecast with a live performance of "We Will Rock You" and "We Are the Champions."

Best Sound Editing recognition went to John Warhurst and Nina Hartstone, while the Best Sound Mixing statuette was presented to Paul Massey, Tim Cavagin and John Casali.

Hartstone, supervising dialogue/ADR editor on *Bohemian Rhapsody*, said in a statement, "The film is ultimately about the music, and we faced many challenges in sound editorial. In addition to building all the concert crowds, we had to create our main character, Freddie, using three different voices: Freddie Mercury, Rami Malek and Marc Martel [a Mercury sound-alike]. Most of the singing in the film was actually Freddie, with a few areas of additional singing performed by Martel. It required careful editing on our part to put those voices together and then make them come out of Rami's mouth in a seamless way. Pro Tools Ultimate was critical in helping us to achieve this."

Academy Awards
www.oscar.go.com

Professional Wireless Systems Opens in NY

NEW YORK, NY—Professional Wireless Systems has opened an office in New York. PWS is already a familiar presence in the region, as it has long had a strong customer base there, and it is owned by New Jersey-based Masque Sound, a mainstay of the Broadway and regional live sound industry. The New York office is headed up by RF technician Don Kuser, who has been working as an RF coordinator since 2012. His experience includes TV studio projects throughout Manhattan, as well as work on area awards shows and in the fashion production industry.

"This is a very exciting opportunity as I have been a huge fan of Professional Wireless Systems since I began working," Kuser said. "With the products and experience the organization brings to the table, I think we can do great things. Sales, customer support, project management, RF coordination—we have everything necessary to create successful projects and events for clients throughout the region."

PWS general manager Jim Van Winkle added, "Being able to provide local support and service with a trained, experienced professional is going to be a win for everyone involved. As our footprint expands, so does our ability to create and implement events flawlessly for customers everywhere."

Professional Wireless Systems
www.professionalwireless.com

Don Kuser heads up Professional Wireless Systems' New York offices.

P&E Wing Honors Willie Nelson

SANTA MONICA, CA—Every year, Grammy Week provides an opportunity for the music industry to get together, and like clockwork, the festivities always kick off with the Recording Academy Producers & Engineers Wing's annual fete. This year's edition, the 12th, was held at the Village Studios in West Los Angeles on Feb. 6.

Representatives from pro audio manufacturers, services and organizations pledged their support for the event to honor individuals who strive for audio excellence, as the occasion is focused on the recording, mixing and mastering engineers and record producers who capture great performances for posterity, often leading to Grammy Awards and nominations of their own. This year's event featured the presentation of the President's Merit Award to Willie Nelson, recognizing both his commitment to creative and sonic excellence and his ongoing support for the art and craft of recorded music.

"We were happy to return to our familiar setting at the Village Studios for the P&E Wing's yearly highlight, our Grammy Week celebration," stated Maureen Droney, the Recording Academy managing director, P&E Wing and Recording Technology. "This event is always a huge undertaking, and it couldn't be accomplished without our industry partners showing their support. We sincerely thank them for helping make this event happen, as well as all the other contributions they offer throughout the year."

In that regard, Dolby joined Iron Mountain Entertainment Services as a Premier Sponsor for the event, while sponsor partners included Shure, Music Marketing (representing the brands Celemony, Nugen Audio and FabFilter), Jaxsta, Audio-Technica, BMI, iZotope, Lurssen Mastering, Arthur J. Gallagher Risk Management, Louisiana Entertainment, AFM & SAG-AFTRA Intellectual Property Rights Distribution Fund, and Joe D'Ambrosio Management.

The Recording Academy
www.grammy.com

Members of the recording community came together for the annual P&E Wing event at the Village Studios during Grammy Week.

Dirac Nets $13.2M Financing

UPPSALA, SWEDEN—Digital audio optimization company Dirac has completed a $13.2-million round of financing led by current investors. Ambitiously, the DSP company intends to use the proceeds to develop "intelligent audio solutions" across consumer and pro industries, aiming to create an end-to-end DSP chain of audio solutions employed from capture to playback.

Dirac has appointed former Harman International SVP of R&D Armin Prommersberger as CTO and opened an R&D facility in Copenhagen, Denmark.

Dirac
www.dirac.com

A Pirate's P.A.

LILLE, FRANCE—In addition to food, Pirates Paradise, a new restaurant and entertainment venue near Lille, France, features a spectacular pirate ship interior, hourly pirate shows and a large play area. CODA Audio provides coverage for the music that plays during meals and speech reinforcement during the shows.

The main P.A. comprises two hangs of two CODA Audio CoRAY4i cabinets and a single G18SUB subwoofer flown head-on as the space is entered, L-R above a row of "drinking houses." On the left- and right-hand sides of the restaurant are the pirate ship and "jail," each of which is accented by two CoRAY4i cabinets and two G15SUB subwoofers.

The CoRAY4i is the installation version of the CoRAY4, optimized for permanent applications. It features high power handling of 700W, achieved with dual 4-inch high-frequency neodymium planar wave drivers and four 5-inch ultra-low distortion cone speakers. By altering the CoRAY4i's horizontal and asymmetrical coverage, the audio team is able to eliminate unwanted reflections.

CODA Audio P.A. system at French theme restaurant Pirates Paradise

The G18SUB subwoofers, hidden in the scenery throughout the venue, offer low frequency response down 28 Hz and a maximum SPL of 139 dB. The G15SUB subwoofers used on the wings of the venue offer a similar spec but with a 15-inch driver.

The system was designed in conjunction with CODA Audio France, whose Yves Guegan and Philippe Pelmelle made suggestions for loudspeaker and subwoofer placements. Present during installation, the pair assisted with fine-tuning.

The system is powered by seven CODA Audio LiNUS10C amplifiers, which feature integrated DSP. The four-channel loudspeaker management amplifiers provide 10,000W of total RMS power output, and incorporate four-in/four-out DSP, network and amplification.

CODA Audio
https://codaaudio.com

SNK Studios Gets Focused

LONDON, UK—Audio post-production house SNK Studios, located on the outskirts of Soho in central London, is known for its ADR, voiceover recording, sound design, and television and cinema commercial music design and mixing services. Recently the facility upgraded, adding a Dolby Atmos room.

"The Atmos suite has two ISA 428 Mk II four-channel preamps," says studio director and company co-founder Seb Juviler. The Dolby Atmos room, designated Studio 7, is the result of a collaboration among Dolby Europe, acoustician Nick Whitaker, Miloco Builds and speaker manufacturer ADAM Audio. Equipment was supplied by resellers Jigsaw24 and Scrub/HHB. The room is Dolby-certified to handle short-form commercials for television and cinema presentation, typically in 5.1 and 7.1.

Studio 7 features several Focusrite RedNet interfaces that provide access into and out of the room's Avid Pro Tools HDX systems. "We worked closely with the guys at Jigsaw who spec'd the room," says Juviler. "The RedNet interfaces offer the ability to handle the quantity of channels and objects for Dolby Atmos, plus the product line is very modular, so you can pick and choose what you need. Jigsaw was keen to use RedNet for that reason."

Studio 7 at SNK Studios is the facility's new Dolby Atmos mix room.

The SNK facility, built by London-based Miloco, also houses several dedicated audiobook recording suites. "They all have an ISA One and are recording hundreds of audiobooks a year," reports Juviler.

SNK currently features four main audio post-production suites delivering audio for short-form commercials and ADR for dramas and features; each of these suites is equipped with a Focusrite ISA Two dual mic preamp, he says. SNK has additional 5.1 mix rooms and tracklay and prep systems often deploying Focusrite Scarlett IO. This network of interfaces connects the facility's over 20 Pro Tools systems.

Paired variously with Audio-Technica, DPA, Neumann, Sanken and Sennheiser microphones available in the nine voiceover booths throughout the building, the Focusrite ISA preamps have served a long list of audiobook clients including Audible, Penguin Random House UK and U.S., Scholastic and Macmillan. They are also used for SNK's foreign dubbing and international versioning work, including shows destined for streaming platforms and international broadcasters.

Focusrite
pro.focusrite.com

Kaiser Chiefs Wrap Up Tour

LIVERPOOL, UK—Indie rock band Kaiser Chiefs recently wrapped up a UK tour, playing a variety of venue types. The band was once again mixed by longtime engineers Chris Leckie (FOH) and Ilias Andrianatos (monitors).

Some aspects of the tour were the same as ever. "As with every Kaiser Chiefs outing since 2007, I'm using Liverpool's Adlib as our audio vendor," said Leckie. "As well as having something of a connection to the company, I'm always inclined to pick them simply because the crew are always great and the equipment is immaculate."

Nonetheless there were new wrinkles this year, as the tour carried a pair of Allen & Heath dLive S7000 surfaces for use at FOH and monitors, and two DM64 MixRacks. The system also handled audio needs for the support band, Novacub.

Monitor engineer Andrianatos has been with the band since 2005. He also opted for dLive for this tour: "I love how user-friendly and easily customizable the whole rig is. The surface makes perfect sense in terms of layout, and there's a very straightforward and logical way of setting the desk up, making it easy to patch I/O, assign PAFL and set up softkeys."

Leckie noted that he plans to keep using the desk this summer as the band makes the rounds again. Among other stops, the band will be opening for The Who at Wembley Stadium in July.

Allen & Heath
www.allen-heath.com

Ilias Andrianatos manned the monitor position on Kaiser Chiefs' recent tour, mixing on an Allen & Heath dLive system.

Rock 'n' Roll Sound in a Salt Mine

THURINGIA, GERMANY—Merkers Adventure Mine in Thuringia, Germany, recently played host to the Queen tribute act MerQury in its unique concert hall: a former bunker for potash salt located 500 meters (about 1,650 feet) underground. The space—70 feet wide, 55 feet high and 820 feet long with walls of solid rock—was a challenge for the team from event services provider PVS Jena, which was brought in to provide audio for the sold-out show.

Jens Peterlein, managing director at PVS Jena, noted that the challenge of choosing and setting up the audio system was complicated by both the location and the show's logistics. "The installation times in Merkers are short, the delivery through the pit is very complex, and it requires precise planning [because everything has to travel] 500 meters with the elevator and then 15 minutes by transporter underground to the event hall, so every move must be considered," he said.

PVS Jena ultimately opted for an RCF HDL 30-A system backed up by RCF SUB 9007s, SUB 9004s, TT22-A front-fills, TT052-A lip-fills and TT22-A in two delay lines.

An RCF system was used for a concert within the reflective confines of a former salt mine in Germany.

Using RCF's software tool RD-Net and its prediction tool, PVS Jena simulated the system and venue in advance so they could configure and install it quickly. A primary goal was to minimize reflections by keeping the area behind the stage as quiet as possible and limiting the sound to 325 feet within the hall.

Two hangs of eight HDL 30-A modules and four Sub 9007-As per side, plus four Sub 9004-As in the center, comprised the main P.A. The subs were placed in cardioid mode and acoustics were optimized using a preset. RCF TT22-A modules served as front-fills and a pair of TT052-As acted as near-fills. At the 100- and 200-feet marks from the stage, pairs of TT22-A multifunctional speakers provided delay.

Helping to keep the sound clean, the band performed with IEMs, though singer and frontman Johnny Zatylny preferred using two TT25CXA wedges on stage.

RCF USA
www.rcf-usa.com

Singapore Arts Center Rides with Waves

SINGAPORE—The key venue of the Star Performing Arts Centre in Singapore, the 5,000-seat Star Theatre, is fitted with high-end audio, video and production lighting systems to accommodate a range of amplified music and speaking events, as well as large-scale corporate meetings and pop concerts. Key to providing audio for them is a variety of Waves products, according to Reuben Ong, head of audio.

The gear on hand includes Waves SoundGrid Servers, MultiRack and the SD7 Pro Show bundle. Ong explained, "Waves processing is a part of our current default console setup in the Star Theatre. Our default theater console system consists of three units of DiGiCo SD7 Quantum: one each for monitors, FOH and broadcast/recording. At each of the SD7s there is an engine-based redundant system for Waves controls and processing. On each console, both engines are connected to two Waves Extreme Servers and two host computers for the MultiRack application [Apple Mac minis through a gigabit network switch]. Configuration is such that each SD7 engine is connected to one Waves Extreme Server and one Mac mini for controls. A 24-inch touchscreen monitor is used with both Mac minis by means of a KVM setup. Currently we are using the Waves Pro Show SD7 plug-in bundle for all of the SD7s."

The Star Theatre at the Star Performing Arts Centre in Singapore.

The facility recently transitioned to Waves Servers. Ong explained, "The main plug-ins that we have used extensively for our meeting events are, of course, the Waves Dan Dugan Automixer and Dugan Speech. This is especially useful for company AGMs, where we see about 30 microphones on stage for the board of directors and more mics on the audience floor for Q&A. It eases the engineer's work in managing a large number of open mics. The Waves Dugan Automixer plug-in has been effective in managing feedback and for balancing levels for many conferences, and drama skits at the Star Theatre.

Waves Audio
www.waves.com

Solotech Rebrands

MONTREAL, CANADA—Audiovisual/entertainment technologies provider Solotech has undergone an image update with a new visual identity that emphasizes the different services it offers for productions.

"This rebranding is a fantastic evolution of our image, an honor to our expertise and passion for more than four decades," said Martin Tremblay, president and CEO of Groupe Solotech. "We are looking ahead with confidence thanks to our modern and dynamic identity, which is aligned with our strategic objectives. Our new imprint enables us to better stand out not only on the global stage but also on digital and mobile platforms."

SOLOTECH
simply spectacular

The update comes as the company aims to raise its profile in international markets outside its native Canada. In late November, Solotech acquired noted UK audio provider SSE Audio Group, cementing its place in the European market.

Along with a new slogan—"Solotech, Simply Spectacular"—the image update includes a website showcasing the company's new identity, the result of a long-term endeavor involving multiple collaborators (including Ascendis and Apogée Solutions Créatives), and overseen by Christine Latour, marketing and communications director, and her team.

"I am convinced that our modernized and asserted identity, combined with our talented team, continues to strengthen our leadership and visibility on all continents," said Tremblay.

Solotech
www.solotech.com

Larry Klein Is Alive and Well and Recording Everywhere

BY STEVE HARVEY

Above: Four-time Grammy winner Larry Klein recently netted his third nomination for Producer of the Year (Non-Classical).
Left: The cover of Klein's Jacques Brel tribute album, *Ces gens-là (Those People)*, features the artists in the same bar pictured on Brel's 1966 album release of the same name.

LOS ANGELES, CA—"I'm an omnivore when it comes to listening to music. I enjoy listening to pretty much everything," says Larry Klein. His catholic taste in music has served him well in a career that has encompassed touring on bass with jazz greats Freddie Hubbard and Wayne Shorter; recording with the likes of Peter Gabriel, Roy Orbison, Diana Ross and so many others; and producing an eclectic selection of artists that includes Dinosaur Jr., Rebecca Pidgeon and Walter Becker.

Klein is probably best known for his production work with female vocalists, notably Joni Mitchell—to whom he was married for almost 12 years beginning in 1982—Tracy Chapman, Melody Gardot and Julia Fordham. This year, the Recording Academy recognized Klein, a four-time Grammy-winner, with a third nomination for Producer of the Year (Non-Classical), for projects with Madeleine Peyroux, Luciana Souza (whom he married in 2006), Hailey Tuck, Molly Johnson and Thomas Dybdahl. He also has quite a list of film and TV scoring credits, including numerous episodes of *Felicity*, and is a prolific songwriter.

Not surprisingly, having worked with such a wide range of artists and in so many genres over the decades, Klein knows how to get the best out of someone in the studio. "One of my favorite things about the job is that it's always different on each project and with each artist I work with," he says. "My mission is to make a record that is going to take an artist to the best of what they possibly can do, maybe even further, and elevate their game. [The goal is to] focus the lens on what is compelling and alluring about an artist, what makes you want to listen to them and watch them."

Sprinkled through his discography are several tribute projects featuring collections of artists. He thrives on the challenge of wrangling a variety

(continued on page 24)

Leesta Vall's Fast-Paced Lathe Catches On

BY STEVE HARVEY

Leesta Vall Sound Recordings has cut more than 700 sessions live to vinyl using an ancient Presto K8 portable vinyl record lathe.

BROOKLYN, NY—Aaron Zimmer was running a successful one-man agency, Leesta Vall, booking up to 1,500 shows a year for a roster of two dozen artists, when he purchased a Presto K8 portable vinyl record lathe on eBay and—hey presto!—he switched careers. Well, not so fast.

Having acquired the Presto, manufactured in the 1940s, "I set it up at my kitchen table and just banged my head against the lathe for a couple of years trying to get it all to work," says Zimmer. "I bet I cut 5,000 bad records before I got one good one."

The idea began as an art project, with Zimmer recording friends and roster artists using a single microphone in his 10- by 10-foot room. "We got started in February 2017. By late summertime, as the project grew, I started shrinking the roster until I didn't have one. We converted the agency to full-on lathe-cut vinyl and have been doing it ever since."

Leesta Vall Sound Recordings gradually expanded from one to three rooms at New York Studio Factory in Bushwick. In December 2018, Zimmer relocated to a facility in Greenpoint, where he is just applying the finishing touches to his renovations.

He was initially drawn to "this community of lathe-cut nerds" after seeing Jack White's 1947 Voice-O-Graph vinyl recording booth—which Neil Young used to record his 2014 *A Letter Home* album—on *The Tonight Show Starring Jimmy Fallon*. "I was in love with the idea that you could walk into a booth, make something and leave with a record," he says.

Many in the community offer short runs of 25 or 50 copies, Zimmer says, but he hit on a novel idea: have each artist produce a unique record to order. "I couldn't find anybody in the world doing something like that in a way that artists could engage their fanbase and make a little bit of money. And maybe *I* could make a little bit of money."

Every session, and there have been nearly 700, now follows a preorder model. "The artist makes a list of songs available and fans can go to the webpage and preorder the song they want. When the artist shows up for the session, we already know who we're cutting the records for. The beautiful thing for the listener is that we cut that record specifically for them, which includes a message from the band, right on the record."

The average session, he calculates, is 18 to 20 cuts. "It's not abnormal to cut 10 or 30 records in a session. I think the most we had in one campaign was 80. We generally won't go that high; it's an endurance

(continued on page 24)

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WHAT HI-FI? AWARDS 2017

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Niles City Rethinks Old-School Recording

BY STEVE HARVEY

FT. WORTH, TX—Niles City Sound may be the studio that helped launch the Grammy-winning career of throwback R&B singer Leon Bridges, but the partners behind the facility initially had a different plan.

CHRIS VIVION.

Niles City Sound worked with Suffolk Studio Design's Bob Suffolk to create a live room that specifically recalled Abbey Road's Studio 2, with a raised control room and staircase within the recording space.

"Originally, we were going to do a studio for old town-square radio broadcasts," says Josh Block, who started Niles City in 2014 with Austin Jenkins, a fellow musician from Austin-based rock band White Denim, and Chris Vivion, the group's tour manager.

Individual circumstances brought the three to the Dallas-Fort Worth area, where Block and Jenkins are from and where Vivion attended college. Regrouping, they sat down to think about next steps and decided to set up a studio in Fort Worth.

They knew they had found their new home when the building owner threw open the doors to the warehouse, says Block. "From the concrete floor to the ceiling, which is close to 18 feet, it's just a great space. We thought, before we do the radio thing, let's do a record. That's what we knew how to do. And that was Leon."

The trio bought tie-down straps and converted the huge space into a makeshift studio. "We spider-webbed in and around the space and built temporary packing blanket walls," he says. They built insulating walls behind the blankets from a pile of HVAC ducting stored at the back of the warehouse. More straps and blankets formed clouds over the drums and the vocal booth.

"We could open the back flap of the vocal booth and let the reverb wrap around and come back into the booth. That was our room slap," he says.

Niles City has become known for its enviable collection of vintage tube equipment. Much of the classic gear on those initial recordings, which became Bridges' debut album, *Coming Home*, was Block's. "I had been personally acting like an idiot with my wallet for several years before," he says. That equipment was supplemented with a borrowed Studer tape machine and desk for the initial four-day tracking session, but the equipment didn't match the sound they were going for, he says.

The partners set out to find the missing pieces of the studio's sonic jigsaw puzzle. "I'm a lover of gear not just because of the gear but because of the stories that go with it," says Block. He certainly found some stories.

"I contacted a guy with a couple of Ampex machines—a half-inch 3-track and a 1-inch 8-track. We drove to Northern California and picked them up. He ends up being Dan Healy, who worked with the Grateful Dead. The machines were from their stash; the 3-track was from the Warfield Theater."

Block had also heard word of a 2-inch 16-track MCI sitting in a barn outside of Sacramento and called in on the way back to Texas. "I brought it home, started working on it and called a couple of guys in Nashville who work on MCIs." One of them asked Block to read the serial number. "He thinks I may have stumbled on the very first 2-inch 16-track," he reports.

Niles City Sound originally had a Collins 8-channel dual-mono tube broadcast console, built out by Block's buddy Jim Vollentine, co-owner of Coil Audio, who had modified it for LCR operation. That console has since been replaced by an Altec 9200, originally built for Bradley's Barn in Nashville, that was previously owned by Kevin Augunas and installed at Fairfax Recordings (formerly Sound City). "We jumped on that and a couple of the Scully 2-inch machines," says Block. "Ken Hirsch at Electrodyne Audio in L.A. custom-built the return console. It's 16-track, 4-bus on the left side, and the right side is a simple LCR return console that works with the 2-inch 16-track."

Block relies on Altec 604 main monitors, also using Tannoy, PMC, Focal and ATC nearfields. "Because the control room is so small, I tend to shift nearfields around more for the client than myself. When I mix, I go to the ATCs because they're pretty natural sounding."

A variety of mics is available, including a Neumann M367, which shares some of the U67's components. "A microphone I've grown to love is the old Altec 'Coke bottle' mic. It sounds incredible. We have six and I use them on everything. You have to know how to use it," he says, "but once you figure it out, it's really cool."

As Block wisely notes, "Gear isn't everything. It's the knowledge of how it works [that's important], and I think you have to get into it to learn how it works."

Microphones are a good example. "There are a lot of things people tend to overlook: how they react to the amp, pairing microphones and amps correctly, what it means to put a mic up in a room and what that polar pattern does," he says. "It's not just about using a figure-8 to null out bleed in a room. It's about making sure the sounds around you that happen to bleed into that microphone come in at a good phase relationship and sound good."

A solid understanding of microphones is critical at Niles City, which today is one large tracking space with an elevated control room, created with the assistance of Suffolk Studio Design's Bob Suffolk. Originally from England, Suffolk moved to Texas in the '90s after decades of rubbing elbows with a who's who of '60s and '70s UK rock royalty; over the years, he's worked on roughly 200 studios, including a refurb of Trident Studios in London.

"He has an affinity for that era and those studios. Bob really, really pushed to put a tiny version of the Abbey Road staircase in," says Block. "The idea was to put the emphasis on the tracking room, with no booths or isolation, and was based around the most basic way to improve sightlines, which was to take away distractions," he elaborates. "The best way to do that was to lift the control room up."

Niles City Sound is more like a brand than a studio, says Block, with the whole team working as session players, songwriters, engineers and producers. The Leon Bridges project was a boon; determined not to be defined by it, however, they have since worked with more contemporary-sounding artists such as Frank Turner, Need to Breathe, Robert Ellis and the Tender Things, led by Jesse Ebaugh of the Heartless Bastards. Their artist development roster includes Vincent Neil Emerson, Jake Paleschic and Keeva.

A common thread is a focus on the vocal. "I'm interested in those voices," says Block. "And it's good to work with artists who have an audience in mind because there's something that brings everybody together."

Niles City Sound
www.nilescitysound.com

Augspurger On the Move

BY STEVE HARVEY

Now in his 90s, George Augspurger (above) is still creating studio design projects, including Timbaland's tour bus studio (left), centered around an SSL Matrix console.

LOS ANGELES, CA—If you visit any of the popular online pro audio forums regularly, you might be forgiven for thinking that renowned acoustician and audio engineer George Augspurger stopped working years ago. But now in his 90s, and into his seventh decade in the industry, Augspurger is still busy, with a number of studio design projects currently underway in the Los Angeles area and another in Peru.

"Even though I'm old enough that I've slacked off and am working part-time, I'm also still doing custom monitor designs from time to time," says Augspurger, taking time out to talk to a reporter in the lounge at one of his L.A. projects, not far from Van Nuys Airport. As with many of his studio designs, the facility, which is nearing completion, features a pair of Augspurger's iconic soffited main monitors.

Augspurger's in-wall mains are the stuff of legend. "The most popular configuration of the ones I did, which originated for the Village Recorder [in West Los Angeles], was two woofers in an inverted V with a high-power horn above. Of the ones I personally designed, there must be between 50 and 100, and no two are exactly alike. They're all individually designed for particular clients."

While studios typically feature Augspurger monitors prominently on their equipment lists, they are not all genuine examples. "From the very beginning, there have always been copies floating around," he says. "People either manage to get a pair of my horns from some installation being torn apart or, in some cases, they reverse-engineered them and copied the high-frequency horn."

When it comes to speaker design, Augspurger, a fellow of both the Audio Engineering Society and the Acoustical Society of America, knows of which he speaks. He joined JBL in 1958, before he'd even finished his master's degree at UCLA. Initially, he was put to work writing technical brochures. "I had published a bunch of articles in the tech publications, so my name was known," he explains. He was with the company for more than a decade, during which time he established JBL Professional and led the new division as technical director, a position that consolidated engineering and sales.

Parts of the world, including the United States, were going through a Hi-Fi craze when he joined JBL, Augspurger recalls. "One of the great experiences I had, several years before, was when I heard the JBL Hartsfield demonstrated at the Hi-Fi Show in New York. I was completely blown away by what they had managed to do."

Several years later, JBL had its first opportunity to enter the recording studio market. "In the early '60s, when Altec Lansing was in the throes of being continually sold, the 604 [monitor speaker], which was the standard at that time, became very iffy" in terms of availability, he says. Capitol Records needed a replacement and approached JBL, where the late Bart Locanthi, the company's vice president of engineering, came up with the design for the S7 studio monitor system.

"Capitol was delighted," he says. "They immediately set it up as the standard and we suddenly had strong ties to the recording industry." The design was subsequently modified from a sealed box to a ported enclosure for more bass extension and higher power, he adds.

When Harman acquired JBL, he continues, "I was familiar with a number of people in the recording industry, so I figured instead of giving them advice for free, I would set up my own consulting practice," which he named Perception Inc. His consulting work has since expanded beyond recording studios to also include major film and television facilities. Augspurger, a member of the U.S. Institute for Theatre Technology, has also worked with venues such as the Hollywood Bowl and the Dorothy Chandler Pavilion, both in Los Angeles.

Augspurger doesn't build monitors; he provides his clients with the design drawings. The horn is critical to the system's performance, and he has long relied on just a few people to make them to precise specifications. "There were originally only three cabinetmakers in the U.S. that I trusted to make the horns, at least the ones I've approved—and there are lots of bootleg copies," he says. Two fabricators have retired, he reports, but there are still two sources.

> "I never claimed anything magical about the enclosure design because the enclosures vary so much. The advantage is that in a tight situation, I know enough about speaker design that I'm comfortable altering the proportions to make them fit into a particular space."
>
> *George Augspurger*

"I never claimed anything magical about the enclosure design because the enclosures vary so much. The advantage is that in a tight situation, I know enough about speaker design that I'm comfortable altering the proportions to make them fit into a particular space," he says. One example, he says, is a pair of custom monitors that he designed for Timbaland: "They're high-power but small, squeezed into the space that's available in the bus."

He is currently working with Atlantic Records on a compact monitor for the label's production rooms. "Instead of scaling down a larger monitor, I wanted to use the full-size horn and find a pair of super-high-power 8-inch woofers. You can then augment it with a subwoofer. They were delighted with the concept," he reports.

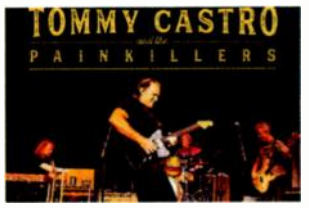
Augspurger has been ideally placed to observe the changing trends in studio design over the decades. In the 1960s, he says, people like Bill Putnam built relatively small, acoustically live, mono production facilities. Once multitrack tape machines appeared, then 2-track stereo became the norm; when studios fitted with that technology ran up against the need to have space for numerous people from the record labels, control rooms began to trend larger. "The room had to be large enough to accommodate a producer's desk, which made it sound that much better at the same time," he says.

Augspurger contributed a generic control room design of that period to John Eargle for the last edition of his *Handbook of Recording Engineering*. "It was typically about 18 by 23 feet, with a ceiling 9 to 11 feet high. Not totally dead, but not nearly as live as the rooms were back in the '60s."

As for tracking spaces, during the past 20 years, "We went from the super dry, very tight, punchy Dave Hassinger drum sounds to suddenly wanting a big, live, resonant drum sound again. Overnight, everybody wanted to work in live rooms."

And now, as digital technology has taken hold, "There are much fewer commercial studios being built and the home market has taken over," says Augspurger. "Here in the San Fernando Valley, every sixth house has a studio in their garage conversion. The 20-by-20 mix room with a little vocal booth is pretty much a standard configuration out here."

ARTIST: THE GREEN
ALBUM: BLACK & WHITE
LABEL: EASY STAR RECORDS
PERSONNEL:
Produced by: The Green, Leslie Ludiazo (additional production)
Engineered by: Davey Warsop, Brad Watanabe, Michael Grande, Noah Cronin, Lapana Ieriko (additional engineering)
Mix Engineer: Danny Kalb
Studios: Hurley Studios (Costa Mesa, CA), Studio Ala Moana (Honolulu, HI), Sea Major Seven Studio (Honolulu, HI)
Mastered by: Danny Kalb at Studio Ganglion (Loveland, OH)
EQUIPMENT NOTES:
Avid Command 8 control surface; Focal Twin and Behringer Behritone monitors; Sennheiser HD 600 headphones; Avid Pro Tools



ARTIST: TOMMY CASTRO & THE PAINKILLERS
ALBUM: KILLIN' IT LIVE
LABEL: ALLIGATOR RECORDS
PERSONNEL:
Produced by: Ron Alan Cohen, Tommy Castro
Mix Engineer: Ron Alan Cohen
Studio: Ra Music Studio (Mill Valley, CA)
Mastered by: Collin Jordan and Bruce Iglauer at the Boiler Room (Chicago, IL)
EQUIPMENT NOTES:
Quested H108 and Yamaha NS10 monitors, Avid Pro Tools

ARTIST: SARAH POTENZA
ALBUM: ROAD TO ROME
LABEL: SELF-RELEASED
PERSONNEL:
Produced by: Jordan Brooke Hamlin
Engineered by: Gena Johnson, Russ Long, Jordan Brooke Hamlin, Helen Vaskevitch (assistant)
Studio: MOXE (Nashville, TN)
Mastered by: Joe Causey at Voyager Mastering
EQUIPMENT NOTES:
Rupert Neve Designs 5088; Atomic SixTen, Adam Audio A7X and PMC studio monitors; Avid Pro Tools

ARTIST: NINE SHRINES
ALBUM: RETRIBUTION THERAPY
LABEL: MASCOT RECORDS/ MASCOT LABEL GROUP
PERSONNEL:
Produced by: Dan Korneff
Engineered by: Dan Korneff, Nick Sferlazza
Mix Engineer: Dan Korneff
Studio: Sonic Debris Recording Studio (West Babylon, NY)
Mastered by: Dan Korneff at Sonic Debris Recording Studio
EQUIPMENT NOTES:
Solid State Logic SL8048GB console, Nola Boxer monitors, Steinberg Cubase 9.5

ARTIST: LAKOU MIZIK X 79RS GANG FEATURING RÉGINE CHASSAGNE AND WIN BUTLER
ALBUM: IKO KREYÒL (KREWE DU KANAVAL MIX)
LABEL: CUMBANCHA
PERSONNEL:
Produced by: Eric Heigle, Win Butler
Engineered by: Eric Heigle, Emily Eck, Matt Aguiluz
Mix Engineers: Craig Silvey, Win Butler, Eric Heigle
Studios: Artist Institute (Jacmel, Haiti), Boombox Studio (New Orleans, LA), Wixmix Productions (New Orleans, LA)
Mastered by: Vlado Meller at Vlado Meller Mastering
EQUIPMENT NOTES:
Solid State Logic AWS 948 Delta 48-channel, Genelec monitors

ARTIST: WILLIAM HARRIES GRAHAM
ALBUM: JAKES
LABEL: INDEPENDENT
PERSONNEL:
Produced by: Stuart Sullivan, William Harries Graham
Engineered by: Stuart Sullivan
Studio: Wire Recording (Austin, TX)
Mastered by: Stuart Sullivan at Wire Recording (Austin, TX)
EQUIPMENT NOTES:
API 32x12x32 console; Yamaha NS-10M, Chris Pelonis, Adam Audio and Auratones monitors; Aviom 16 personal mixers; Avid Pro Tools 12

ARTIST: ZFG
ALBUM: ZFG
LABEL: INDEPENDENT
PERSONNEL:
Produced by: Heartbeats (Justin Gariano, Dusty Schaller); co-producer ZFG
Engineered by: Heartbeats
Mix Engineer: Justin Gariano
Studio: TreeHaus Recording (Los Angeles, CA)
Mastered by: Stephen Marsh at Marsh Mastering (Los Angeles, CA)
EQUIPMENT NOTES: Solid State Logic AWS 900+, JBL and Barefoot Sound monitors, Avid Pro Tools

ARTIST: BRUTUS
ALBUM: NEST
LABEL: SARGENT HOUSE
PERSONNEL:
Produced by: Jesse Gander
Engineered by: Jesse Gander
Studio: Rain City Recorders (Vancouver, BC)
Mastered by: Alan Douches at West West Side Music (Cornwall on Hudson, NY)
EQUIPMENT NOTES:
Neve VR Legend, Dynaudio BM15A monitors

ARTIST: AUSTIN PLAINE
ALBUM: STRATFORD
LABEL: BLASTER RECORDS
PERSONNEL:
Produced by: Jay Foote
Engineered by: Jay Foote, with Rob Evans and Ken Rich
Mix Engineer: Steve Vealey
Studios: Stratford Road Studio and Grand Street Recording (both Brooklyn, NY), Quarter Rest Studio (Nashville, TN), Haunted Hollow (Charlottesville, TN)
Mastered by: Joe LaPorta at Sterling Sound (Edgewater, NJ)
EQUIPMENT NOTES:
Apogee Quartet, Avid Pro Tools, Apple Logic Pro

ARTIST: FURY
ALBUM: FAILED ENTERTAINMENT
LABEL: RUN FOR COVER RECORDS
PERSONNEL:
Produced by: Madison Woodward
Engineered by: Colin Knight, Madison Woodward, Andrew Oswald
Mix Engineer: Jack Endino
Studio: Paradise Records (Anaheim, CA)
Mastered by: Dave Gardner at Infrasonic (Los Angeles, CA)
EQUIPMENT NOTES:
Neumann KH 120 monitors, Otari MX-5050 8-track recorder, Avid Pro Tools

notes

A Nuage Fit for a King

NASHVILLE, TN—J Sound Services designed and equipped a private studio in Nashville for William King, a founding member of The Commodores, featuring a Yamaha (www.usa.yamaha.com) Steinberg Nuage advanced production DAW system, which will be used primarily for songwriting, recording jingles and soundtrack work.

Killer Tracks and Wax Partner

SANTA MONICA, CA—Production music house Killer Tracks (www.killertracks.com) and independent record label Wax Ltd. have launched a new production music label, Audio Wax, led by multi-platinum-selling producers/songwriters and Wax Ltd. founders Wally Gagel and Xandy Barry, with projects featuring musicians from Passion Pit, Best Coast and other acts.

Laughing Tiger, "Amazing" Bass

SAN RAFAEL, CA—Ari Rios, owner and chief engineer at Laughing Tiger Recording Studios, which has recorded the likes of Carlos Santana, Tommy Castro and Maria Muldaur, recently upgraded his monitoring system, including installation of Powersoft's (www.powersoft-audio.com) Quattrocanali 4804 amplifier platform.

ELS Takes a Shine to ATC

BOSTON, MA—Elliot Scheiner, whose eight Grammy wins include work with Steely Dan, Donald Fagen, Derek & The Dominos and Beyoncé, switched to ATC (www.transaudiogroup.com) SCM25A three-way reference monitors several months ago after using them during his recording and mixing workshops at Berklee College of Music.

New Trends in Plug-Ins

BY CRAIG ANDERTON

At first, plug-ins were software replacements for existing hardware. Now, with over a quarter century of development, plug-ins are exploring worlds that go way beyond analog emulation.

Waves' latest technology, incorporated in the CLA MixHub (designed with Chris Lord-Alge), breaks the paradigm of working on only one channel within a single plug-in. MixHub isn't a processor per se; it's a controller for plug-ins. Conceptually, it's like a DAW's console view, expanded to show as many channels as possible, and with all the channels grouped logically. What's different is the fluidity with which you can edit individual channels.

After inserting a MixHub plug-in in every channel you want to process, you then assign each channel to any one of the MixHub's eight slots. For example, when working on the rhythm section, MixHub can bring the multitracked drums, bass and rhythm guitar processors into a single interface. You can then adjust them as a unit instead of going back and forth among individual channel plug-ins. There are four different views per bucket: input, EQ, dynamics or output for each of the eight slots. However, you can also flip MixHub into a Channel view, which exposes all the channel strip parameters for any one MixHub channel.

Because one MixHub plug-in can accommodate up to eight buckets of eight tracks, a wide enough monitor could display 64 channels of EQ or dynamics—and a touchscreen monitor would resemble working on a giant mixing console. There's an insert point for an additional Waves plug-in, although you can always insert plug-ins before or after the MixHub plug-in that's inserted in a mixer channel. The bottom line: MixHub is a plug-in that focuses on creating a workflow, not just a particular sound (in this case, a model of Chris Lord-Alge's console).

Another category of plug-in uses DSP to take audio apart and put it back together again—a representative tool is AudioSourceRE's DeMIX and RePAN. DeMIX isn't a magical solution that separates out the tracks from your 48-track mix; think of it more as a toolkit for creating stems that can separate out vocals, drums and other elements with varying degrees of precision. DeMIX's operation reinforces comments I made in the February Software Tech column about how the cloud is becoming an essential part of our world—after choosing the function you want to use, your data goes to the company's servers for analysis and then returns in "rendered" form. It takes some effort to "teach" the program about the material you want to separate, but it's an amazing tool nonetheless. I can't imagine anyone doing remixes who wouldn't want to become proficient at DeMIX.

Zynaptiq, beyond its innovative processors, has been a pioneer in the field of "unbaking the cake." It started in 2012 with Unveil, which emphasizes or de-emphasizes reverberation in existing recordings (even mono). You can take out room reverb or, for that matter, increase ambiance—but it can also work on other

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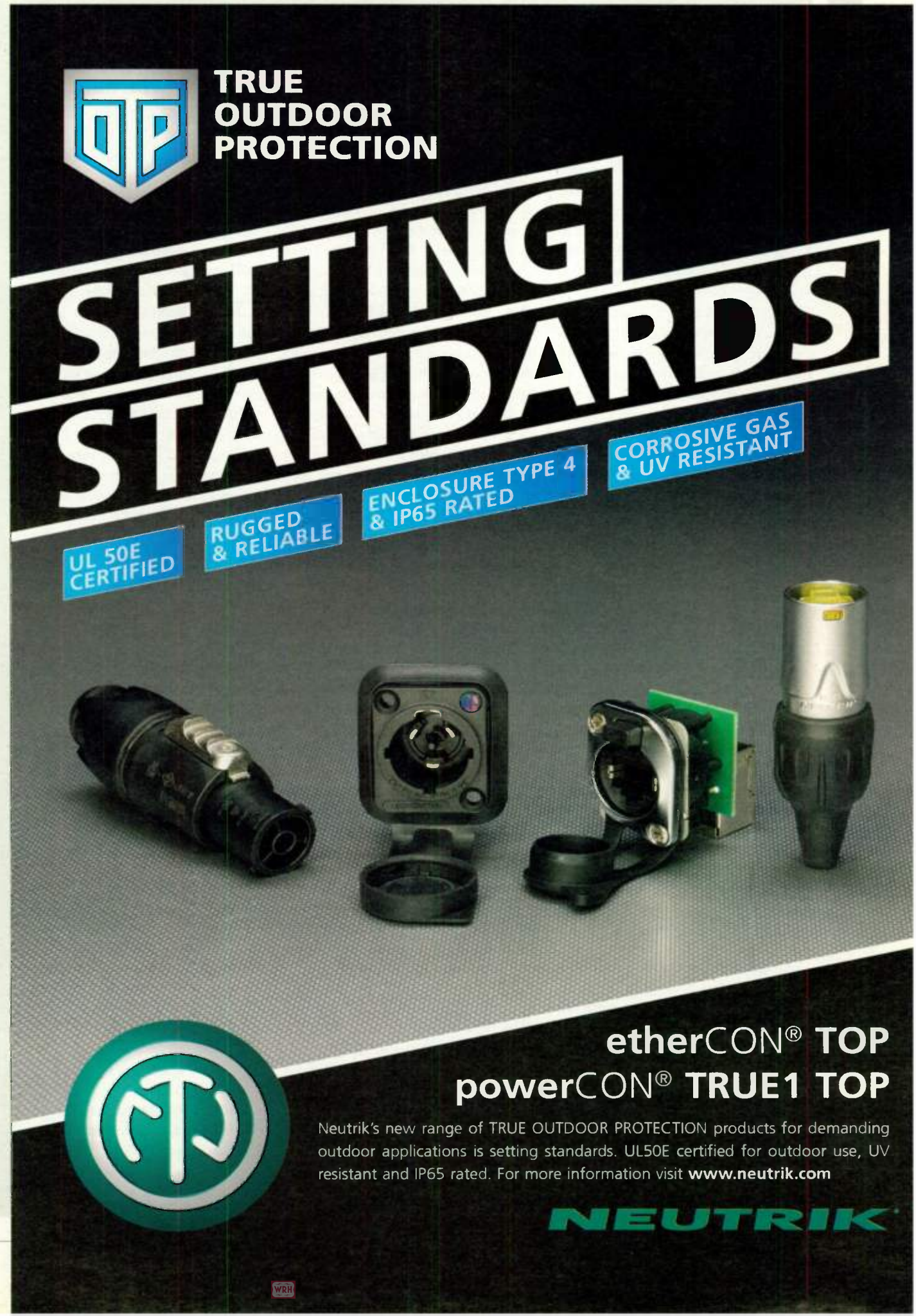

Larry Klein

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of talent and the problems and complexities presented by such projects, he says.

"It's an interesting puzzle. Not only do you have to figure out how that person fits into their individual track, but you have to figure out how they fit into the whole of the record," he says. Klein adds that as producer, he must make the song relate to who the performer is as an artist while also fashioning the treatment of the song to serve the overall contours of the project.

Klein's next release, a tribute album of songs by Jacques Brel, added an extra degree of difficulty in that the project had to stay true to the legacy of a songwriter and performer virtually venerated as a patron saint in France. Brel was born in Belgium but found fame in France, where he died at the age of 49 from lung cancer. The album, *Ces gens-là* (*Those People*), features more than a dozen singers, including Klein's longtime collaborators Gardot and Peyroux, as well as Marianne Faithfull, Carla Bruni and Thomas Dutronc, and marks the 90th anniversary of Brel's birth.

The *Ces gens-là* cover photo features the artists in the same bar pictured on Brel's 1966 album release of the same name. A table and chair at the front are unoccupied, accompanied by smoke rising from an ashtray.

The 40th anniversary of his death passed with relatively little notice, especially in English-speaking countries, perhaps because Brel is sometimes dismissed there as somewhat melodramatic, as Klein observes, although he is fêted for songs such as "Ne me quitte pas." Yet his influence has been immense, with covers of his songs ranging from the well-known—by David Bowie, Scott Walker and Tom Jones—to the less well-known—by Nirvana, the Sensational Alex Harvey Band and the Dresden Dolls.

> "My mission is to make a record that is going to take an artist to the best of what they possibly can do, maybe even further, and elevate their game."
> *Larry Klein*

"I had been a Brel fan since I was a kid," recalls Klein, whose parents introduced him to the artist's work after seeing an off-Broadway revue of his songs that debuted in 1968. "As time went on, I was always curious about him and his body of work, so I gradually started listening to songs, looking at translations of the lyrics. Over the course of years, I realized what an innovative iconoclast the guy was, in addition to being a great poet and a great songwriter."

As he was putting the project together, Klein says, "I got to thinking, this guy was a combination of Bob Dylan and Stephen Sondheim. He was really a heavyweight in so many ways: the subject matter he tackled, the way he approached humor and topical cultural and social material."

The album, for Universal Music France (released April 5 on Decca), was recorded half in Paris and half in Los Angeles. "Here in L.A. we recorded some of the tracks without vocals; that was another challenge. I had to conceive of how we were going to treat a given song and put a picture together in my mind, then sketch out the arrangement and explain it to the musicians I was working with. It really worked out beautifully."

Klein certainly knows his way around the studio, but if he's producing, then that's his sole focus. "I find that if I try to do anything on the engineering level, it's too much for me to handle at the same time, so I always work with an engineer. I've been privileged and fortunate to work with great engineers, both on the tracking and mixing. That really helps me a lot with respect to being able to concentrate on the musical architecture, arrangements and ideas—rather than making sure I'm not printing the vocal with the tambourine," he chuckles.

Klein teaches master classes and mentors aspiring young producers, many of whom have not yet grasped exactly what the job entails. "It hasn't entered their minds that there is a way to get great performances out of people. There is a whole psychology and a methodology, a way of working with people, that leads to getting the best out of them," he says.

His work with Marianne Faithfull in Paris on the Brel tribute offers a case in point. "She did an incredible performance of 'Port of Amsterdam,' using the David Bowie translation. She doesn't like headphones, so we set up a really directional mic and she sat in front of the speakers in the control room. At the last minute, she said, 'I'm so nervous. You have to hold my hand.' So I held her hand through every vocal pass. That's what she needed. It was quite a profound experience."

It's not just up-and-comers who don't understand the job. "Before my parents passed away, all the way until their later years, occasionally they would ask, 'What is it that you do, actually?' The job is mysterious," he says.

That said, the goal is easy to define: "You want something magical that encapsulates life in the way that a film does. You want people to go beyond their best."

Larry Klein
www.larrykleinmusic.com

Leesta Vall

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contest for the band." That particularly popular performance was by a local TV star and was split across four or five recording sessions.

As for revenue sharing, he says, "We split 50/50 with the artist after costs. The records generally sell for $25 on the website; they cost about $5 in supplies to make, so there's a royalty split of $10 for the band and $10 for the label."

Originally from the Midwest, Zimmer spent years touring as a singer-songwriter. "I was making my roots here in New York City and was collecting old tape stuff and vintage outboard and was able to put together a tiny closet with a Tascam M388," a combination mixer and quarter-inch 8-track machine. "That's where I got my feet wet. I've done a lot of recordings in Pro Tools in real studios, but old equipment and keeping things small was always more fun and more meaningful for me."

Despite his recording experiences as an artist, "I don't have Pro Tools or know how to use it. I never identified with recording to a computer. It has always been more fun for me to record when you realize you have limitations."

Zimmer now has a Tascam M38 half-inch 8-track machine and occasionally records to tape for pressed vinyl projects. "I love the old Tascam stuff," he says. Yet even with tape, he prefers the single-take workflow. "I don't mind a vocal or guitar overdub, but I prefer to get the whole track again, so there's a good take."

His Tascam M50 mixing desk from the '80s recently died and has been replaced temporarily by a Yamaha console. "Something vibey and analog is where we'll go. We'll get a Trident or something like that."

Zimmer initially focused on singer-songwriters because he had just one mic. Now he has a larger mic collection that includes various Audio-Technica models thanks to an endorsement by the manufacturer. There was an iso booth for drums at the NY Studio Factory, but the new Greenpoint location has a different layout, enabling larger ensemble recordings, he reports. "The entire band is in one live room; I had a seven-piece in there last week."

Leesta Vall's racks are stacked with Universal Audio LA-610, 4-710d and 710 Twin-Finity mic preamps. "I've got a few Warm Audio pre's I like to use for drums," he says. "Outboard, I've got a couple of old Furman RV-1 spring tanks, and I've got an EL8 Distressor that I use on a drum bus. All that gets mixed and sent to a Warm Audio WA-2A limiter, the LA-2A copy. That sends the signal to the cutting preamp, and that delivers the signal to the cutting head."

He's a fan of Warm Audio products: "The prices are good, and they sound pretty darn good. I've never A/B'd the WA-2A to the real thing, but it does a good job for us. And I love their preamps."

The lathe is a Rek-O-Kut Imperial, made in Long Island City, NY, around 1951, says Zimmer. He also has a tiny Atom, made in Japan in the '80s during the original karaoke craze for people to memorialize their singing—just as cassette tapes launched. "The company didn't do well," he laughs.

The Atom has captured numerous record store in-store performances, open mic events and live shows. The most recent was Rachael & Vilray (featuring Rachael Price of Lake Street Dive) at Manhattan's Rockwood Music Hall, says Zimmer. "They sang into one ribbon microphone. Every song they played at the show was cut to its own record and we sold them right there."

Audiophiles might sneer at the quality, but as Zimmer comments, "For the listener, they don't care what it sounds like; they don't pick up on the nuances. What they want to hear is a good performance. All the projects capture spontaneity and good musical ability right in the moment. That's what makes a recording so special."

Leesta Vall Sound Recordings
www.leestavall.com

briefs

Norris Nabs Sanken Shotguns

ATLANTA, GA—Atlanta-based production sound mixer Whit Norris, CAS, whose feature film credits include *Anchorman 2*, *Hangover 3* and *Fast 7*, recently purchased three Sanken (www.sankenmicrophones.com) CS-M1 microphones for his location work from local dealer Trew Audio after reportedly hearing about the short shotgun from Jim Pace at Sanken U.S. distributor plus24.

White Mark Transforms Pixelogic

LONDON, UK—Acoustic consultancy White Mark Ltd. (www.whitemark.com) designed and installed five Dolby Atmos-approved, Dante-networked sound mixing and screening theaters and two ADR booths for Pixelogic, which has transformed a former office building in London's West End into a content localization and distribution facility.

Galatz Upgrades Dalet Workflows

ISRAEL—Israeli national radio network Galei Tsahal (Galatz) is upgrading to the Dalet (www.dalet.com) Galaxy five Media Asset Management and Workflow Orchestration platform, which incorporates Dalet On-the-Go and AI-powered algorithms, to enable workflows that better serve its audience with greater access to content across its digital channels and social networks.

Abbott Stays on Schedule

LOS ANGELES, CA—The functionality of Calrec's (www.calrec.com) Apollo console is reportedly helping Mike Abbott, established A1 mixer and owner of All Ears Inc., cope with the tight schedules of the current season of *The Voice*, which requires a quick turnaround for the West Coast and foreign distribution two hours after the broadcast.

Welcome to the Jungle

BY STEVE HARVEY

PLAYA DEL REY, CA—Shindig Music + Sound celebrated its second anniversary in mid-March with an expansion of its space and its services, unveiling a new 5.1 mix suite and a new production/green room to complement its existing amenities, which include unobstructed vistas of sand, surf and sun. The company now offers a full suite of audio post services, including stereo and surround final mixing, sound design, voiceover recording, original composition, music licensing, music searches and a recently launched music library.

Shindig's facility is in a beachfront triplex in a compact residential neighborhood built in the 1950s that is historically known as the Jungle. "At first we had two units here, one of which I live in," says creative director Scott Glenn, who founded the company with sound designer and mixer Daniel Hart and executive producer Debbi Landon in mid-March 2017. All three previously worked for 15 or more years at Hum Music & Sound Design, a Santa Monica-based shop that was founded by Jeff Koz—brother of jazz saxophonist Dave—in 1997.

Shindig's new 5.1 mix space sports ADAM Audio A7X monitors.

As it turns out, everyone at Shindig is ex-Hum. Caroline O'Sullivan, head of production, was there for a couple of years before joining Shindig, as was Austin Shupe, who came onboard as in-house composer last year. The Shindig team has also partnered with Susan Dolan, head of music research and licensing/music supervisor, a 10-plus-year veteran of Hum. "If someone wants to license a track by a signed artist, she has relationships with all the labels and publishers, and helps find the songs and negotiate the deals," explains Glenn.

The building's upper unit was initially turned into a small audio studio. Advances in production technologies and the proliferation of home studios, combined with the lingering effects of the 2009 recession, have drastically reduced the number of live sessions in the industry. "So to have a studio space where you had a big live room and a sizable control room and iso

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Music Mix Mobile Marks a Decade

HAWORTH, NJ—Longtime friends John Harris, Mitch Maketansky, Joel Singer and Jay Vicari founded Music Mix Mobile in the spring of 2008 with the aim, equipment, background and ability to provide remote recording/mixing/broadcast audio services for high-profile events. Since then, the company has provided its services for the Grammy Awards, the CMA Awards, the Rock & Roll Hall of Fame Induction Ceremony, the Emmy Awards and more. Their efforts have resulted in a few honors of their own, including Grammy, Emmy, TEC and Canadian Emmy awards.

The company got moving right out of the chute, building their own mobile recording facility and two portable systems. In the intervening years they have added a fleet of five remote production trucks, portable flight pack systems and studios. "Ever since John [Harris] and I made the decision to move to the [Avid] D-Control in the first days of M3, which put us into a TDM environment, it became a choice of what TDM plug-ins were available to use," Singer recalls. "We became very familiar with Waves and started to depend on them more and more."

Music Mix Mobile co-founder and mixer Joel Singer.

Singer says Waves plug-ins soon became integral components in every major system M3 assembled, which in turn led to a change in the relationship between M3 and the plug-in manufacturer. Soon things had moved beyond an ordinary manufacturer-client relationship; M3's engineers were providing ongoing feedback to Waves product development engineers, and those engineers made getting software and firmware updates to M3's trucks and mixers a priority. "When you look at John and Jay and the rich history of what they've mixed—the Grammy Awards, Juno Awards, the Emmys, the Tonys—in essence, we are the artist, and that's how Waves looks at us," says Singer.

That relationship came in handy when M3 transitioned to Lawo mc²

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Shindig

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From left: Susan Dolan (head of music research and licensing/music supervisor), Austin Shupe (composer), Scott Glenn (creative director), Caroline O'Sullivan (head of production), Debbi Landon (executive producer), Daniel Hart (sound designer/mixer).

booths really didn't make sense for us from a monetary perspective," he says.

But when the third unit became available, Shindig jumped at the chance to add enhanced mixing capabilities. Hart's new 5.1 mix room includes a voiceover booth and is below a lounge space with an additional kitchen that has been repurposed as a workspace and green room. Shupe has now moved into the original studio on the upper floor. If a project needs a larger recording space, then Shindig books time at The Village, Capitol or EastWest, says Glenn.

The gear for the new 5.1 mix room was sourced from various outlets, says Hart. "I buy a lot of gear from Brian Loney at Sweetwater; he's been my rep there for close to 20 years. We also bought a lot of gear from Reverb.com, Vintage King and RSPE."

Hart, who has pairs of vintage Yamaha NS-10 and Genelec 1031A monitors, says, "I thought the ADAM Audio A7Xs were a good choice for a 5.1 package. We'd had experience with those in prior studios and I like the way they sound, especially in a 5.1 field. They're a little closer to a true reference monitor for me."

He considered installing an Avid S3 or Artist Mix unit for his Pro Tools HD rig. "I work in-the-box so much that all I would probably end up using is one fader to do automation moves." After consulting with several mixer friends, he opted for Avid's iPad-enabled Dock. "It's something you can quickly move your hand to and do some automation, and it doesn't take up a lot of real estate. It's really easy to do all the panning; you can just touch and move stuff around on the iPad screen."

In addition to a Universal Audio Apollo interface and 6176 channel strip, and a Dangerous Music Monitor ST/SR system, the room's Argosy Console Halo desk also houses Hart's Electrix unit. "One is a time-synchronized effects box [the Mo-Fx], which has distortion, flange, tremelo and delay. I have another at the side that's a formant shifter [Warp Factory]. Anybody who doesn't have one doesn't know how great a piece of gear it is," says Hart. "Every time I saw one, I would snatch it up." For VO recording, a choice of AKG, Audio-Technica and Shure mic models are available.

"Our bread and butter is working with advertising agencies and, to some degree, production companies, editors and visual effects companies. We've also done some independent film and some TV stuff," says Glenn. As the ad industry has evolved, there have also been opportunities to work directly with brands where there is no agency of record, he says, including American Eagle Outfitters, Experian and Dell.

"There are multiple reasons behind us adding the mix and voiceover services," he continues. "It allows us to package things better; it's something that Dan does well, so we might as well sell it; and it's one of the aspects of the audio process that still is regularly attended, so you get face-time and hangtime with clients. It's a good way to build relationships."

The advertising focus informed Shindig's decision to put down roots close to Playa Vista, one of several neighborhoods in the L.A. area referred to as Silicon Beach, where tech companies including Google and YouTube have facilities. "Of 15 major advertising agencies in Los Angeles, nine or 10 are located there," says Glenn. "So ostensibly it's convenient for them—though we find it's hard to get people to come."

Indeed, relatively few ad clients attend sessions anywhere anymore. But if they're going to attend any, where better than Shindig, where the sand starts on the other side of the patio wall?

"Some of the mixes we've done here that clients have attended, we put them on the balcony, give them drinks, they hang on the beach. We feel that the more we can give people that experience, the more inclined they will be to come and work with us," says Glenn.

As a bonus, the triplex doubles as a client retreat. "We've probably had 15 or 20 individual single people, couples or groups staying here overnight, just because it's something that we offer. If we're not working on the weekends—and Dan and Austin have remote setups—they have a beach house to themselves. It's a perk of working with us," says Glenn.

"We have a saying: The hardest thing is to get them here. The second hardest thing is to get them out once they're here."

Shindig Music + Sound
www.shindigmusic.tv

M3

(continued from page 25)

consoles aboard its trucks in 2015. "At that point, Waves had introduced SoundGrid Servers, and everything was working on the grid," says Singer. "With the SoundGrid Extreme Server that we use, we can host plug-ins without taking up processing [on the console]. We could lock that right into the Lawo via a digital MADI interface with virtually no latency. We were one of the first ones to utilize Waves with Lawo integration so that you didn't have to update the Waves system separately—every time we store a snapshot in the console, that same snapshot is [automatically] stored in the Waves system."

Singer says M3's mix engineers have created their own favorite combinations of plug-ins for certain award ceremony broadcasts. For instance, John Harris' plug-in complement for the recent Grammy Awards telecast signal flow routed the Waves Renaissance DeEsser into a V-EQ3, into the Renaissance Vox, into the CLA-76 Compressor/Limiter for vocals, and then to the H-Reverb Hybrid Reverb. On the same show, co-music mixer Eric Schilling used the same combination of plug-ins plus the H-Delay Hybrid Delay. M3's 5.1 music mix was combined with other production elements, and that was what ended up in people's homes.

On another recent show in Atlanta—a Foo Fighters concert that took place before the Super Bowl—mixer Jay Vicari used an H-Reverb, H-Delay, Renaissance DeEsser, C6 Multiband Compressor and the dbx 160 Compressor/Limiter. "Every engineer who comes into the truck, like the 18 engineers who walked through the truck at the CMA Awards, is familiar with Waves, and it just translates," says Singer. "There's a common language among all the engineers, whether it's a live engineer or a studio engineer or the producer, and Waves is that common language that everyone understands. For these audio professionals, being able to re-create live what an artist did in the studio is increasingly important, and Waves gives us the ability to provide that level of detail."

Now a year into its second decade, Singer says only two components of M3's fleet of remote production units have remained constant. "Since we started this company, the two things that have stood the test of time have been Pro Tools and Waves," he says.

Music Mix Mobile
www.musicmixmobile.com

Waves
www.waves.com

Thompson Captures *The Walking Dead*

ATLANTA, GA—Sound mixer Chykeria Thompson, founder of Sound Speeds, has made her name working on projects such as the television series *The Walking Dead* and *Atlanta Eat* and the documentary *This World Is Not My Own*. Now she can add to her resume a number of projects that were created in preparation for the Super Bowl.

Thompson started her career with the help of Atlanta-based sound mixer Whit Norris after graduating in 2010 from the Art Institute of Atlanta with a B.A. in audio production for TV and film. Norris' introduction to other people in the industry led Thompson to a five-year stint in sound utility, where she worked on projects including *Family Feud*, *The Hunger Games*, *Necessary Roughness* and *Drop Dead Diva*.

"I was trained as a utility on Lectrosonics. When I was able to buy my own gear, I bought Lectrosonics and still use the gear more than 12 years later," said Thompson. "They're known in the industry for their rock-solid equipment, and for how well [that equipment performs] on dialogue. I have a few other mentors in Atlanta who work on major movies and TV shows and use Lectro as well, so why wouldn't I? Producers are used to seeing Lectrosonics—when they glance at your cart, they want to see it there because then they know that gear works best on dialogue in the field."

Sound mixer Chykeria Thompson has used her Lectrosonics gear on everything from *The Walking Dead* to the EA Sports Bowl.

Lectrosonics
www.lectrosonics.com

CMT Upgrades Post Monitoring in Nashville

NASHVILLE, TN—Television network CMT has upgraded five video editing suites at its Nashville production and post-production facility from 2.1 monitoring to fully discrete 5.1 surround monitoring.

"What we've been seeing over the last several years is more and more third-party program content coming in as 5.1 surround, so we've had to increase our ability to monitor and edit in that format," explains Tom Edwards, director of engineering for CMT.

The upgrade included the integration of Genelec 8320A Smart Active Monitors and 7350A Smart Active Subwoofers. The integration of the new 5.1 monitoring systems, which were purchased through Vintage King Audio Los Angeles, was conducted by CMT itself, with consultation by Russ Berger of the Russ Berger Design Group.

The editing rooms average about 10 by 12 feet and require sonic consistency from room to room, allowing projects to move about the facility in a way that makes workflow as efficient as possible. The smaller footprints of the 8320A and 7350A are an asset in the tight confines of CMT's edit suites, allowing the center-channel speaker of the 5.1 systems to be elevated above the video monitors in the middle of the work areas. Proprietary GLM (Genelec Loudspeaker Manager) software keeps imaging accurate.

The latest upgrade follows a similar upgrade two years ago of the facility's six audio editing suites, which were also updated to 5.1 surround monitoring using the same Genelec configurations. CMT's original 5.1 video post-production studio got its first set of Genelec 5.1 monitors in 2002.

Genelec
www.genelecusa.com

innovations: the manufacturer's view

A 'Family Sound' with Flexibility

BOSE PROFESSIONAL ARENAMATCH DELTAQ LOUDSPEAKERS

BY ALAN SHIRLEY

The ArenaMatch loudspeaker development project kicked off with a series of interviews with leading AV system designers and integrators for outdoor sound reinforcement systems in key market segments: professional sports stadiums, outdoor entertainment areas and higher-education sports facilities. These industry leaders described common problems with using existing loudspeakers for these applications and discussed ideas for design changes that could improve audio performance, simplify system designs and reduce installation time and costs.

These ideas formed the guiding design principles for the ArenaMatch DeltaQ array modules: full-range, high-SPL loudspeakers that can be configured in either line array or distributed point source applications, with an IP55 rating for direct-exposure, outdoor installations. Additionally, the research revealed the need for a complementary line of smaller zone-fill loudspeakers with a similar "family sound" and IP55 rating, which led to the development of our new ArenaMatch Utility series.

Featuring Bose proprietary DeltaQ array technology, ArenaMatch DeltaQ modules can provide customized array coverage to better match audience seating areas and thereby improve sound quality from seat to seat. The product line consists of array modules with 10-, 20- or 40-degree vertical coverage with field-replaceable waveguides that provide 60-, 80- or 100-degree horizontal coverage, for a total of nine different coverage patterns. Each module is a two-way passive loudspeaker that delivers full-range, impactful music playback with high speech intelligibility.

Bose Professional introduced DeltaQ array technology with the RoomMatch loudspeaker series, designed for indoor, fixed-installation systems, about seven years ago. The innovative DeltaQ concept is a hybrid of line array and point source loudspeaker technologies. We took the variety of horizontal-by-vertical coverage patterns from point source loudspeakers and combined that with the design concepts of line array loudspeakers that provide superior vertical acoustic summation. The innovation: coverage pattern and directivity could now be changed for each module in the array, allowing customization of the array coverage to better match the shape of the target audience area. Compared to the coverage of traditional line array systems, which offered only a single horizontal and vertical coverage pattern, DeltaQ technology offered a much greater level of flexibility for more consistent array coverage throughout the seating area.

Additionally, DeltaQ array technology gave designers the flexibility to scale array size based on coverage, SPL and low-frequency control requirements. For example, designers could use three- or four-box arrays to replace conventional line array designs that required eight or more boxes to achieve 90 degrees vertical coverage, provided the requirements for SPL and LF control were met.

Bose Professional ArenaMatch DeltaQ Loudspeakers

With the favorable DeltaQ benefits of improved consistency of sound quality, reduced box count and improved vocal clarity found with RoomMatch loudspeakers, our partners soon asked for a smaller system that could also be used for portable/rental applications. With that input, we developed the ShowMatch DeltaQ array loudspeaker system, which was introduced about three years ago. ShowMatch and RoomMatch loudspeakers share many of the same technologies, including multiple compression drivers per module that combine seamlessly in arrays thanks to the unique manifold device and large-format waveguides for superior pattern control.

Most recently, our dealers requested that we apply the benefits of DeltaQ technology to outdoor-rated sound reinforcement loudspeakers. This was the initial spark that led to our development of ArenaMatch loudspeakers.

As we discussed market needs for outdoor sound reinforcement loudspeakers with leading system designers and integrators, we uncovered several challenges with existing products that could be improved on with DeltaQ technology. The first problem was using point source loudspeakers in three- to four-box arrays, as conventional line array solutions either required too many boxes to achieve the required coverage and were too heavy for the existing building structures, or line arrays were not stocked with outdoor-rated weather treatments. These point source arrays were typically very difficult and expensive to rig, as most lacked array rigging accessories and produced peaks and dips—or array "seams"—in the coverage response due to the physical gaps in high-frequency transducer placement. Our solution was to use DeltaQ technology, which enables four-box arrays that provide greater than 90-degree array vertical coverage, very consistent coverage response, factory-stocked IP55-rated weather treatments and a complete line of array rigging accessories.

The second challenge was that most outdoor-rated loudspeakers that provided good speech intelligibility did not have sufficient frequency response for good playback of high-level music content. In response, we specified components such as large-format waveguides, 2-inch-diaphragm compression drivers and 14-inch high-excursion neodymium woofers to ensure that ArenaMatch provides outstanding speech intelligibility and the full-range response required for high-level music playback without the need for supplemental subwoofers in most applications.

The third problem we heard about was that these markets wanted complete system solutions that were easy to design, install, commission and maintain. The DeltaQ approach provides several advantages to aid in system design and commissioning. With ArenaMatch modules available in 10-, 20- and 40-degree vertical coverage—all with the same transducers—you can easily design main arrays with the coverage you need, then use single 40-degree modules for zone-fill sections. This approach can save time during commissioning, as the main arrays and zone-fill loudspeakers have the same transducers, thus providing similar tonal balance and consistent sound quality for all seating locations—without requiring extensive equalization work. And the complete line of rigging accessories, with load limits certified by third-party labs, saves considerable time and money compared to having custom array frames designed, certified and fabricated.

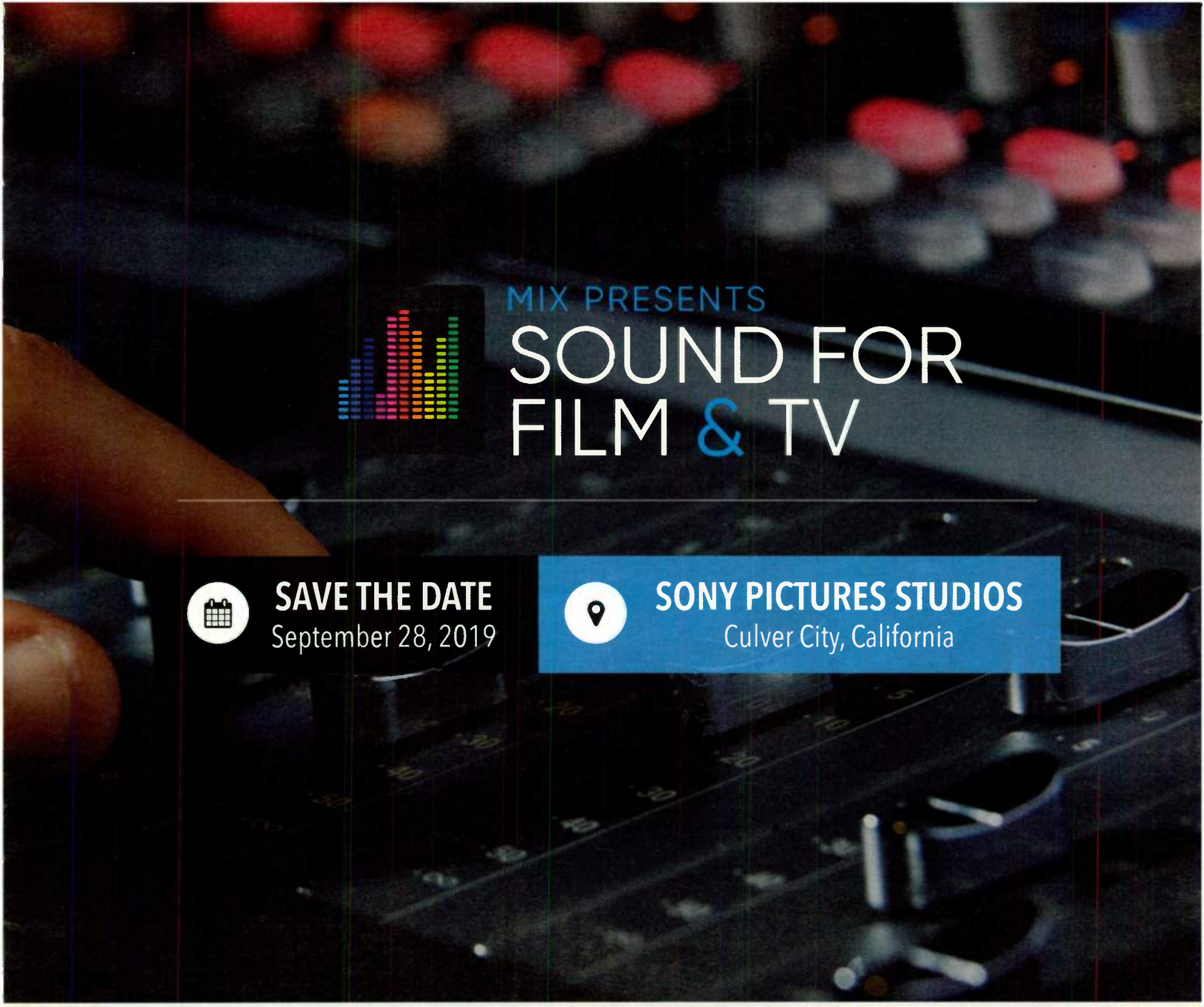
Based on the popular RoomMatch Utility series, our new ArenaMatch Utility loudspeakers are designed to deliver zone-fill coverage or high-SPL foreground music. They use the same Bose compression driver as ArenaMatch DeltaQ array modules, providing similar tonal balance and making it easy to provide consistent sound quality from the largest main array coverage zone to the smallest zone-fill section.

Finally, to complete the system solution requirements, we provide ArenaMatch loudspeaker presets and recommended configurations for Bose ControlSpace Designer software, ControlSpace DSP hardware and PowerMatch-configurable amplifiers. For design workflow flexibility, loudspeaker directivity files are available for both Bose Modeler and AFMG EASE acoustic design software.

The scalability of DeltaQ technology allows ArenaMatch loudspeakers to provide cost-effective solutions for many different venue applications, from large professional sports stadiums to smaller venues such as educational athletic facilities and outdoor entertainment complexes—all with the system performance for outstanding speech intelligibility and impactful, full-range music playback.

Alan Shirley is product line manager for Bose Professional.

Bose Professional
https://pro.bose.com



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PRESENTED BY MIX PROFESSIONAL AUDIO AND MUSIC PRODUCTION

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THE METALLIANCE REPORT: What's Next?

The METAlliance includes (l-r) Ed Cherney, Chuck Ainlay, Al Schmitt, George Massenburg,Elliot Scheiner and Frank Filipetti.

METAlliance®
MUSIC ENGINEERING & TECHNOLOGY
Advancing Excellence and Integrity in Music Technology

The METAlliance—Al Schmitt, Chuck Ainlay, Ed Cherney, Elliot Scheiner, Frank Filipetti and George Massenburg, along with the late Phil Ramone—has the dual goals of mentoring through our "In Session" events, and conveying to audio professionals and semi-professionals our choices for the highest quality hardware and software by shining a light on products worthy of consideration through a certification process and product reviews in this column. Our mission is to promote the highest quality in the art and science of recording music.

BY ELLIOT SCHEINER

You're about to graduate from a music school with a degree in music engineering and production. All you've thought about is how you're going to make it big in the music business.

Most graduates expect to get out, find a studio and get a job as an intern, but that route has always been next to impossible, and the reality hasn't changed. As I talk to students nearing graduation, I encourage them to consider being more collaborative and entrepreneurial. You should consider a route you may have not thought of before: building and owning your own studio.

For years and years, building a studio was a huge expense involving a lot of equipment, patch bays, wiring and large machines requiring industrial air conditioning. It was only for someone with investment money and the available real estate. Personally, I started out at A&R Recording in New York and got to learn from the great Phil Ramone. Phil was always the guy who said, "You should be thinking about having your own room someday." While growing into what was ahead of me, I thought that building a room would be an unsurmountable task.

I have to say, that's all changed. Many of you already know of workable places no one's ever thought to call a studio (it may not necessarily be a place you can work with a band). Turning that spot into a studio might not seem feasible at first glance, but it's not an unrealistic goal at all.

The first thing you should consider is finding classmates who might be willing to do this with you. Find two or three people who think the idea could be worthwhile—say, a couple of engineers and a tech major. Having four other people involved would cut down the cost of building the room, and your new partners would also bring in work.

After I got my first job in the business, I learned that artists would record at studios that had a certain distinct sound. They'd hear records recorded at these studios and believe they had a marketable difference. What's going to make you different from other studios? What will make your studio stand out?

> You should consider a route you may have not thought of before: building and owning your own studio.

In a studio market consistently defined by digital apparatus, you might actually consider analog gear, for instance. That's not to say "don't use digital," but an analog console might have much more to offer than just a fader control and a DAW. The combination of an analog desk and a DAW could offer your facility a compelling and distinct personality—something that will differentiate you from the rest. Look online and you'll see there are quite a few analog consoles around, both used and new, some going for as little as $4,000.

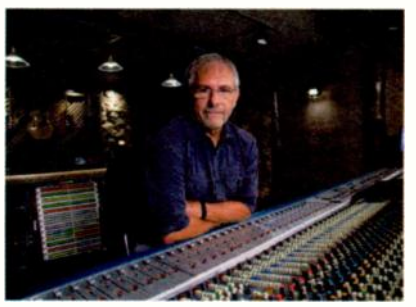
Pick a DAW to work with. Most engineers use Avid Pro Tools; I use Steinberg Nuendo. The one thing I've found important is having gear with unique and proprietary characteristics. I've also had tremendous success with digital plug-ins, which save money and make recalls easier. I'm a proponent of a great signal chain that embodies premier cables and connectors (Sommer Cable comes to mind), preamps and EQs; and I'm a firm believer that a great digital clock makes better audio.

You'll need to assemble a varied microphone collection in both pairs and singles. Instead of spending all of your money on super-expensive mics, you can do most everything you need with affordable, quality mics from Audio-Technica, Royer, Shure and Lewitt. Those are just a few examples, but I will say you should have a tube microphone for important projects. Don't forget DIs, with and without transformers.

You can't do good work without trustworthy listening—speakers are our windows to the musical world. Find speakers that please you but won't lie about whether those jeans make you look fat in the midrange. I used Yamaha NS-10Ms for most of my career, and I feel that they allowed my work to translate pretty well for any listening environment. Find something you enjoy listening to, and that you can trust. You don't want your music going out the door not sounding as good as you had hoped.

Last and certainly not least, find a good space. You can't underestimate the benefits of a thoughtfully designed listening/recording environment with proper isolation and treatment. Consult with a studio designer to get this done for you; you won't regret it.

Congratulations on your upcoming graduation!



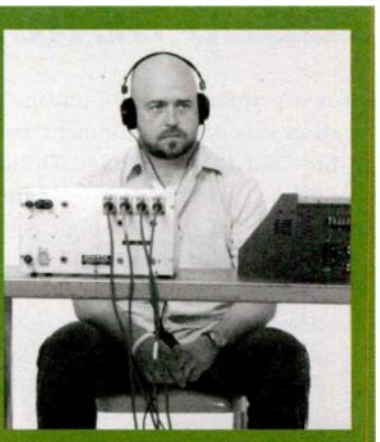
Grammy Award-winning producer/engineer Elliot Scheiner is considered one of the world's foremost authorities on surround sound and multichannel mixing. His talents have been recognized with 23 Grammy nominations and six wins, four Emmy nominations and one win, and five TEC Award nominations with three wins. His accomplishments in the field of multichannel recording have been acknowledged with numerous awards, including the Surround Pioneer Award in December 2002. Scheiner is the creator of the ELS Surround premium audio system currently residing in five Acura car models. Just some of the artists he's worked with include Foo Fighters, Van Morrison, Toto, The Eagles, Steely Dan, Jimmy Buffett, Eric Clapton, Aerosmith, the Doobie Brothers, Fleetwood Mac, R.E.M. and Beck.

METAlliance
www.metalliance.com

UNIVERSAL AUDIO UAD-2 LIVE RACK ■ SOUND DEVICES MIXPRE-6M INTERFACE/RECORDER ■ BLUE EMBER MICROPHONE

UNIVERSAL AUDIO UAD-2 LIVE RACK

Universal Audio UAD-2 Live Rack



BY RUSS LONG

Nashville based Russ Long has been producing, engineering and mixing music for three decades. He spends the bulk of his time working in his Dangerland mix room where he also does console R&D for the Yamaha corporation.

Universal Audio makes some of the finest plug-ins available today. With the UAD-2 Live Rack, a 16-channel 1U MADI box that allows Universal Audio plug-ins to be used in a sound reinforcement situation, UA's plug-ins are as accessible in the live sound arena as they are in the recording studio. Last December I put them to the test to mix a dozen Amy Grant/Vince Gill shows with special guest Rodney Crowell at Nashville's legendary Ryman Auditorium.

The UAD-2 Live Rack incorporates four SHARC DSP core chips for processing. The device supports 16 channels of audio (user-configured as either 16 mono channels, eight stereo channels or any combination of the two) and each channel can host up to eight UAD Powered Plug-Ins, making the potential massive. The box features dual-redundant internal power supplies with fail-over detection ensuring uninterrupted performance.

The Live Rack system is controlled by a Mac computer running the Live Rack application connected via Thunderbolt. Up to four Live Racks (providing up to 64 channels of processing) can be controlled with a single computer. The Live Rack application is designed to provide simple and quick operation during a show; it does exactly that and is incredibly intuitive and easy to use. While I didn't have the opportunity to use the Live Rack app with a touchscreen display, it is worth noting that it is optimized for touch control with a Mac-compatible touchscreen display, which I'm sure will be a factor for many users. The only real downside of the Live Rack application is that Live Rack won't work on a computer that has the Universal Audio studio software installed on it (the Live Rack software is an entirely different application than the studio software).

Since all of the audio processing is done in the UAD-2 Live Rack, the computer is acting simply as a controller and doesn't need anything exceptional as far as processing. I recommend getting a dedicated Mac to control the device. Computer requirements are minimal: an Apple Mac computer with 6 GB of available storage running High Sierra with an available Thunderbolt port (Macs with Thunderbolt 1 or Thunderbolt 2 ports require an adapter). It is not currently qualified with Mojave but there are no known issues.

Live Rack provides incredible low-latency performance. The overall system throughput latency, with non-upsampled plug-ins or when no plug-ins are assigned, is 73 samples. While the majority of UAD's plug-ins are non-upsampled, some are; in those instances, a negligible amount of additional latency (typically 0-89 samples depending on the plug-in and sample rate) added to the signal, making the maximum latency 162 samples (1.7ms @ 96kHz). A list of upsampled UAD plug-ins and their precise latency values can be found in the UAD plug-ins manual.

The processor is available in two bundled plug-in configurations (see sidebar). The UAD-2 Live Rack Core ($2,999) includes a basic plug-in package; UAD-2 Live Rack Ultimate ($5,999) is packaged with a massive collection of more than 90 UAD plug-ins. It's important to note that existing UAD plug-in users can use their UAD plug-in licenses with UAD-2 Live Rack, though a small number of UAD plug-ins are incompatible with UAD-2 Live Rack (the current list is available at https://help.uaudio.com).

I spent a day with the UAD-2 Live Rack at Nashville's Blackbird Studio, where I listened to the plug-ins through the box on a wide variety of source material. I'm a longtime user of UAD plug-ins, so there were no surprises, but wrapping my head around using these studio tools in a live sound situation was a new (and exciting!) concept for me.

Encouraged by the experience, I decided to use the UAD-2 Live Rack for the Amy Grant/Vince Gill shows. In 2018, the Ryman Auditorium renovated its sound system—a process that included purchasing new Yamaha Rivage PM7 consoles at FOH and monitors. Adding a MADI card to the FOH PM7 made interfacing with the Live Rack a cakewalk, and a dozen shows in the same venue gave me the perfect opportunity to put Live Rack to the test.

I couldn't have been more pleased with the box's performance. During different shows, I used the LA-2A and 1176 with the Precision De-Esser on vocals and experienced flawless results. The EMT 140 reverb sounded simply stunning in the room; I used it as my primary vocal reverb for all 12 shows. The Tube Tech CL-1B is one of my favorites in the studio—it worked equally well on vocals, acoustic guitar and bass for the live performances. The AMS RMX16 was my snare drum reverb of choice for every show, and the Fairchild 670/Harrison 32C provided the perfect saxophone chain.

Live Rack stores snapshot configuration files, making it easy to recall show settings for specific songs or song sections. Snapshot configurations can be recalled via MIDI or with the Soundcraft Vi CUE function when using the box in conjunction with a Soundcraft Vi desk.

Universal Audio has arguably the most-used plug-in collection in the studio today, and UAD-2 Live Rack provides an easy and reliable way to take that collection into the live sound arena. Live sound engineers who want to use external plug-ins should give this device top consideration.

Universal Audio
www.uaudio.com

Universal Audio UAD-2 Live Rack Core Bundle

- Antares Auto-Tune Realtime
- Pultec EQP-1A Legacy EQ
- Pultec Pro Legacy EQ
- UA 1176LN Legacy
- UA 1176SE Legacy
- Teletronix LA-2A Legacy
- UA RealVerb Pro
- Precision Mix Rack Collection

SOUND DEVICES MIXPRE-6M INTERFACE/RECORDER

Known primarily for its lineage of location recording equipment used on film and TV sets, Sound Devices was formed by three former Shure employees in 1998. The company initially produced high-quality battery-powered mic preamps for location sound work, then a line of over-the-shoulder location mixers, and later one of the earliest truly professional USB audio interfaces. By 2004 the company was making a line of ultra-compact digital audio recorders and elaborate production mixers, and later a variety of integrated location mixer/recorders.

Sound Devices MixPre-6M interface/recorder

The Sound Devices MixPre-6M is exceptional in that it can operate as either a USB audio interface or as an entirely self-contained, studio-quality DAW—and it performs both functions quite well. The device supports 24-bit recording at 44.1, 48 and 96 kHz.

Truly built like a tank, the MixPre chassis is constructed of die-cast aluminum. The device's top and bottom are fitted with rubber inlay panels that provide secure mounting surfaces for cameras and tripods. The rubber panels also prevent the unit from sliding when placed on an uneven surface. All of the input and output connections, the power switch, and USB and power connectors are located on the sides of the unit.

The MixPre-6M incorporates four of Sound Devices' esteemed Kashmir microphone preamps, accessed via balanced XLR/TRS combo jacks. The custom-engineered mic preamps provide 96 dB of gain and feature a discrete Class-A, transformerless front end providing four channels of high-quality, distortion-free audio recording. The input impedance is 4 k-ohm. Analog limiting (global) and 48V phantom power (per channel) are activated via a software switch. Each input has a low-cut filter with selectable corner frequency (40 Hz, 80 Hz, 120 Hz or 160 Hz). The box also supports a 3.5 mm 2-channel aux/mic input and four channels of USB input via Mac or PC.

Any of the physical inputs can be routed to any of the four channel knobs, so cables don't have to be repatched to route an input to a different track. The metronome can optionally be selected as an input, allowing the click to be recorded to a discrete track. The headphone output and stereo output can share a mix or be configured independently, providing multiple monitoring options. The three transport control buttons (play, stop and record) are located above the channel knobs, and on the right side of the front panel is a 1.6-inch (320 x 256 pixel) color, sunlight-viewable IPS LCD touchscreen. Although the touchscreen menu works well, the MixPre-6M's Bluetooth functionality supports connectivity with the free Sound Devices Wingman iOS/Android app. MixPre-6M has a standard one-year warranty that doubles on registration of the product.

MixPre-6M includes the MX-4AA Battery Sled, which allows the device to be powered via four AA batteries and the MX-PSU AC adapter. There's an optional eight-AA-battery sled, and another sled option that allows the unit to be powered by two hot-swappable Sony L-Mount Li-ion batteries. Additionally, the entire recorder can also be powered from a laptop's USB-C or USB-A ports.

The MixPre-6M's onboard headphone amplifier is powerful and clean, and it sounds quite good. I spent ample time using it with Ultimate Ears LIVE IEMs, Audio-Technica ATH-M60x headphones and Audeze LCD-X headphones, and it performed well in each instance.

As a recorder/workstation, the device allows multitrack recording, overdubbing, punching in and out, and the ability to store and locate to cue points. It supports up to 12 tracks; if more tracks are needed, the bounce function can free up tracks (the bounce source tracks can still be accessed when moving the project into a DAW at a later time). The box includes a metronome, reverb and what Sound Devices labels "Vocal Air Effect," which is a one-knob combination of EQ and compression that adds the breathy presence of a modern pop sound to a vocal track. "Air" sounds surprisingly good considering its limited control, but it can be used on only one track in a project, unfortunately. Once a mix has been created, it can be exported as either a WAV or AAC file.

Reverb options are impressive and include Hall, Room and Plate algorithms. The transport must be stopped to change reverb type, making comparisons a bit difficult, but the parameters (decay time, pre-delay and HF damping) can be tweaked while the track is playing. It's worth noting that reverb can't be used on a 96 kHz project.

As an interface, the MixPre-6M functions as an 8-in/4-out USB audio interface of exceptional quality, providing higher-quality recording than standalone interfaces costing substantially more. The unit has the ability to simultaneously record to its SD card while acting as a USB interface, providing built-in redundancy recording. In my opinion, the audio quality is so good that its cost can easily be justified solely for use as an interface.

The MixPre-6M's manual is well written and straightforward, and the menu navigation of the musician-centered device is intuitive enough that someone with minimal recording experience will be off and running in a matter of minutes.

The philosophy behind the device is to eliminate the computer in modern-day recording, making it easier to capture ideas and songs. Since it's only slightly larger than a typical paperback book, the MixPre-6M can easily be taken anywhere. When a computer-based DAW is needed, the unit becomes a stunningly good AD/DA.

It's no surprise that such a powerful device also requires a significant amount of power. I got just under one hour of operation with four AA alkaline batteries, but use will be significantly longer with Lithium batteries. Users who plan to use it away from AC power will likely want to invest in the sled compatible with Sony L-Mount Li-ion batteries.

The touchscreen is so small that, at first glance, I couldn't imagine it feeling the least bit natural. How wrong I was. In just a short time I was jumping from menu to menu, moving at a completely natural speed. The only task that's a bit time consuming (and frustrating) is entering track and song names, as you have to scroll through the alphabet for each letter. The good news is that the unit's USB-A port can accept a USB keyboard for text entry.

I've found the Wingman app indispensable when working with the MixPre-6M for extended periods of time. The app's touchscreen interface is easy to use and provides quick remote-control of the unit's functionality. The app makes it easy to view channel and stereo mix meters, start and stop audio recordings, enter and edit metadata, rename tracks, arm and disarm tracks, and view track-arm status. The app can be password-protected for increased security.

I think most users will transfer tracks recorded with the MixPre-6M into a DAW for mixing. Connect it to a computer with a USB-C cable and place MixPre into file transfer mode to get the SD card to appear on the desktop. Audio files can then be copied to the computer or opened directly in a DAW. (These raw files are named with a time/date stamp along with the track number, not the track name given in the session, so it is important to note which track is which.) I continue to be surprised at the quality of the recordings I've made with the MixPre-6M. The sound is smooth, natural, uncolored and noise-free.

While I didn't have the opportunity to use the MixPre-6M with an external controller, I'm pleased to report that with firmware v3.0 and higher, the device can be connected to several third-party controllers for tactile control of mixing and recording. Currently supported controllers include Korg NanoKontrol Studio, Korg NanoKontrol 2, Novation LaunchControl XL and Akai MidiMix.

Rivaling the performance of the most expensive studio recording channels, the MixPre-6M is a truly amazing device. Anyone in need of a battery-powered mobile recording system or an extremely high-end audio interface should give it a listen.

Sound Devices
www.sounddevices.com

BLUE EMBER MICROPHONE

The latest offering from acclaimed manufacturer Blue Microphones is Ember, an XLR studio condenser mic for recording and live streaming. Though it comes in at just under $100 ($99.99), the Ember is an exceptional microphone irrespective of cost. The small-diaphragm, side-address condenser microphone's tight cardioid polar pattern provides excellent off-axis rejection, and its sleek profile provides ease of use in tight miking applications. The 8.6-inch x 1.5-inch mic offers a 38 Hz–20 kHz frequency response while handling sound pressure levels up to 132 dB. The mic weighs 0.84 pounds and features a beautiful metallic blue-grey body with a black metallic capsule screen. The mic includes a sturdy swivel mount but no bag or case.

While Ember's strength is no doubt in capturing vocals (I've successfully used it to record both female and male vocals), the mic is equally suited to recording musical instruments. I used it to beautifully capture a Taylor 514-CE acoustic guitar. The narrow pickup pattern makes it easy to simultaneously record guitar and vocal without significant vocal bleed in the guitar mic or vice versa. The mic also works well on electric guitars in most instances, especially when recording cleaner tones. Blue designed the mic to meet the needs of video content creators. Its side-address design makes it is easy to position in a video shoot, allowing it to be placed for the ideal sound without being obtrusive.

Blue's Ember Microphone

When recording drums and percussion, I've used the mic on hi-hat, snare top (the mic does an exceptional job of recording brush work), snare bottom and tambourine. Many home/project studios are initially limited to a single mic—I can't imagine anything fitting the bill better than Ember.

Ember's low profile and sleek, smart look make it an ideal option for video, yet its sonic performance makes it a strong mic option for a project studio or a great mic locker addition for any size studio.

Blue Microphones
www.bluedesigns.com

Mackie FreePlay Series

BY CLIVE YOUNG

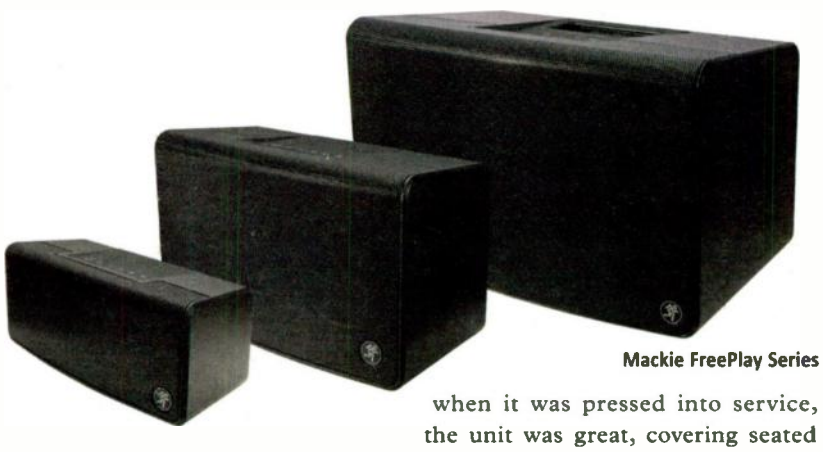
Since debuting in 2015 as a simple portable P.A./boombox, Mackie's FreePlay brand has expanded into a full-fledged series with three models to suit a variety of needs: FreePlay LIVE, FreePlay HOME and FreePlay GO. Their names tell the story: The largest unit, LIVE ($399), is primarily a personal P.A., while HOME ($249) might be considered a modern-day replacement for the bookshelf stereo, and GO ($179), the smallest of the three, is meant to be tossed in a knapsack for music on the move.

For this review, Mackie provided the LIVE and HOME units, but all three share a number of features, including up to 15 hours of rechargeable battery life, control via the FreePlay Connect app, and an all-in-one design with a low-key visual aesthetic. Devoid of brash colors, glowing lights and other design elements you often find on Bluetooth speakers, the FreePlay Series has a modern, mature sensibility built around a tasteful black metal grille and durable molded enclosure, both with distinctive curves that help the units blend into a variety of situations. Likewise, while neither unit I tested was especially heavy, they both looked and felt pleasingly solid. As a result, the FreePlay Series projects an air of sophistication; whether you're setting up the LIVE Personal P.A. for an audience or have a HOME unit sitting in a corner of your kitchen, their appearance tells you a bit about what to expect.

What you expect, of course, is good sound, and FreePlay delivers there, too. The 4-pound HOME does a nice job as a portable Bluetooth speaker capable of streaming audio from devices like your phone or an Amazon Alexa, but I spent most of the review period focusing on the LIVE PPA, since it's most applicable to *PSN* readers.

The LIVE unit offers 150W of power and covers a frequency range of 60 Hz to 20 kHz using a high-output 6-inch woofer and dual tweeters, all of which sit in a specially tuned ported enclosure that offers 90-degree dispersion. The back panel demonstrates the thought put into ensuring the LIVE is flexible enough for a variety of scenarios. Dual 1/4-inch/XLR combo inputs can take mics, guitars and other instruments, while a 1/8-inch stereo aux input can connect smartphones and other devices. That said, the LIVE offers Bluetooth connectivity, so you might prefer to stream audio to it wirelessly, depending on your situation. Rounding out the back, a 1/4-inch balanced monitor out allows you to send your mix to another powered speaker, mixer, portable recorder or something else.

Atop the unit sits a multipurpose LED meter and a button-based mixer that allows you to adjust all three inputs' levels and overall volume, apply onboard reverb, and choose EQ presets for recorded or live music. For users who don't feel like repeatedly dashing over to the LIVE unit to adjust things, Mackie offers the FreePlay Connect app for iOS and Android devices, allowing wireless control of all those parameters, even when also streaming music to the LIVE via Bluetooth. Additionally, the app can save and recall snapshots, which is a nice touch. The app works smoothly and at a respectable distance; my only issues with it came from my finicky phone, which doesn't like to remember Bluetooth connections from one day to the next.



Mackie FreePlay Series

In use, the LIVE unit simply worked—no surprises, no disappointments. It set up quickly for a number of impromptu living room jam sessions and was able to get brawny when necessary, providing a considerable amount of low end despite its diminutive size. For a backyard party, it filled the space easily with streamed music without ripping the heads off of people sitting near it; no doubt, the EQ presets helped.

But the way I used the LIVE unit most often was as a backup P.A. for a series of lectures at public libraries where I ran Apple Keynote and video clips off a laptop. AV systems in libraries are invariably old, quirky, poorly maintained and used by hundreds of people a year, and the staff is rarely knowledgeable about them, so you're usually on your own if you need to patch in. Getting a laptop and the AV systems to play nice was always simple when it came to video (the VGA connector is alive and well in America's libraries), but during the review period, there were a number of occasions where the LIVE PPA came to the rescue in terms of audio. Since it weighs just under 9 pounds and measures 7.75 x 14 x 7 inches, the LIVE unit was no hassle to bring along just in case, and when it was pressed into service, the unit was great, covering seated audiences of up to 60 people without breaking a sweat. During video clips, I would visit the back of the room to check the sound, and coverage was always strong and clear, even when LIVE was placed relatively low to the ground on a chair. (There's a built-in speaker-tripod mount for users who are better prepared than I was.)

Also of note is the unit's built-in, rechargeable lithium-ion battery; while you can run LIVE plugged into a wall socket, the battery was rock-solid during the review period, going multiple months without a recharge while periodically getting thrust into 90 minutes of speech and music without a hiccup. Intriguingly, the various FreePlay models can link to each other wirelessly, too, for a multiroom listening situation, though they can only share Bluetooth audio.

While the original FreePlay tried to be all things to all people, Mackie's idea to offer an expanded line of largely specialized units was a great move, allowing the company to provide quality sound at a variety of price points that scale up with the user's goals, ensuring customers get only the features they need. LIVE in particular does a fine job for a sub-$500 PPA, cementing what I expect will be a long run for the FreePlay line.

Mackie
www.mackie.comv

Focusrite's RedNet Control Update

The latest version of RedNet Control software can control configuration, status monitoring, metering and more for the company's Red 4Pre, Red 8Pre and Red 16Line audio interfaces. Version 2.3 is a free update, providing support for Thunderbolt control of the units, effectively bringing to an end the need for the separate Focusrite Control application. The update unifies RedNet Control with Focusrite's range of audio interfaces, offering up to 64 in/64 out Thunderbolt I/O with Pro Tools HD and Dante network audio connectivity. Other new features include Device View, a graphical representation of each device on the local network, that gives feedback such as signal metering, clock status, power supply state and primary/secondary network connection state.

PreSonus Studio Series USB-C I/Os

The new line of Studio Series USB-C audio interfaces comprises five models: the Studio 24c, Studio 26c, Studio 68c, Studio 1810c and Studio 1824c. The entire 24-bit, 192 kHz line replaces PreSonus' first-generation Studio series. Studio 1810c records up to 18 simultaneous inputs and sports eight outputs and four microphone inputs with XMAX Class-A mic preamps. The Studio 1824c audio interface is intended for project studios and is especially for recording full bands, including multichannel drums. It records up to 18 simultaneous inputs and features eight microphone inputs with XMAX Class-A mic preamps. Its 18 outputs offer routing with DSP-based monitor mixing and control room integration with included Studio One Artist and UC Surface software.

PMC IB2S Active Studio Monitors

PMC has updated its IB2S line of studio monitors with the IB2S-AII and twin-cabinet IB2S XBD-AII reference monitors. The IB2S-AII and IB2S XBD-AII each feature a pair of 3U rack-mounted electronics per channel that contain DSP-controlled Class-D amplification delivering 2,025W for the single cabinet IB2S-AII and 3,225W for the IB2S XBD-AII twin-cabinet version. The three-way IB2S-AII master cabinet can be purchased as a speaker in its own right, or together with the single-driver XBD bass cabinet to form the IB2S XBD-AII system. Both systems feature PMC's hand-built preparatory drivers—a 10-inch carbon fiber/Nomex piston, a 75 mm fabric dome mid, and a 34 mm soft dome tweeter in each cabinet.

Fluid Audio FX80, FX50 Studio Monitors

Fluid Audio has introduced the second generation of its FX80 and FX50 monitors. The updates include Class-D amplifiers with high- and mid-frequency adjustment knobs, acoustic space, low frequency rolloff and optimized composite cone woofers, along with a new industrial design. DSP-controlled crossover provides blending of the woofer to the soft dome tweeter, and ensures that there is effectively zero variance amplifier to amplifier. Other features include 5-inch/8-inch composite cone low-frequency drivers; 1-inch/1.2-inch silk dome tweeter mounted in waveguide; biamplified 100W/140W Class-D amplification; and Acoustic Space Control that lets you calibrate the low frequency to your mixing environment (0, -2 and -4 dB).

DiGiGrid IOS-XL, DGS-XL and MGR Interfaces

DiGiGrid has launched three new interface and SoundGrid processing products: the IOS-XL, DGS-XL and the MGR. IOS-XL is an all-in-one audio interface and processing platform for studio and live users. Building on the DiGiGrid IOS, it has an Extreme i7 Server, offering double the DSP. The interface provides eight mic/line inputs, eight line outputs, two headphone outputs, MIDI I/O, S/PDIF and AES inputs and outputs, and an integrated 4-port Ethernet switch. DGS-XL is a standalone Extreme SoundGrid i7 DSP Server with an integrated 4-port PoE-capable network switch for simple integration into SoundGrid systems. MGR is a quad MADI interface that takes either BNC copper or LC optical MADI cards, making the unit flexible for integration into any MADI setup.

firstlook

Lectrosonics DCHT Portable Digital Stereo Transmitter

Lectrosonics has introduced the DCHT portable digital stereo transmitter for use in film and TV production. The unit can be operated as a wireless audio link from a bag or cart system to cameras, and as a portable IFB transmitter paired with the Duet digital wireless M2R receiver packs. The DCHT accepts two channels of mic or line level analog signals or an AES digital signal from a mixer, and transmits to the receiver or receivers in a pure digital format. The unit offers input gain adjustment and DSP-controlled limiting; input connections and settings are included for any lavalier microphone, dynamic microphones, and line level inputs. Input gain is adjustable over a 51 dB range in 1 dB steps.

Audient Sono Guitar Recording Interface

Sono, a new recording interface for guitarists, brings together Audient's A/D conversion with speaker-cab simulation from Two Notes Audio Engineering. On board is a 12AX7 analog valve and three-band tone control alongside Two Notes' Torpedo power amp modeling and cab simulation. Users can choose from a range of guitar and bass cab models, with more tones downloadable from Torpedo Remote if needed. Customization is available for the room type, microphone model and placement as well, and presets can be stored. Monitor mix allows blending between the guitar input signal and DAW playback, preventing latency problems while tracking. Sono sports two Audient console mic pre's and expandability up to 10 inputs via ADAT for recording drums, converters and more.

Bettermaker Stereo Bus Compressor

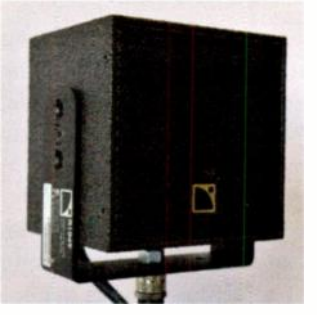
The Bettermaker Bus Compressor combines a stereo analog signal path with digital recall and parameter control, and/or automation from a cross-platform plug-in, aiming to combine a boutique analog signal path with the convenience of a plug-in. The unit is intended for tracking, mixing and mastering work, and with its digital control aspects, it is able to also offer modularity. Besides the basic compression parameters like attack, release, threshold, ratio

and so on, the Bus Compressor can be upgraded via expansion packs to perform more specialized functions like M/S, dry/wet mixing, high-pass sidechain filtering, different compressor modeling modes, and more. The Bettermaker Bus Compressor will ship during the second quarter of 2019.

Yorkville Sound Synergy Array Series

Yorkville Sound has unveiled the Synergy Array Series, its largest and most powerful point source system to date. The Synergy system consists of the SA153, a three-way full-range active cabinet—2,600W (program), 5,000W (peak)—along with the SA315S active subwoofer. It incorporates Tom Danley's patented Paraline Lens and Synergy Horn technologies. Intended for use in for the club, outdoor festival, theater and arena markets, Synergy is scalable in both horizontal and vertical planes, making it adaptable to suit any coverage pattern. The geometry of the Paraline Lens produces a precisely shaped wavefront that matches the horn's physical coverage pattern while providing a continuous horn throat from cabinet to cabinet on the horizontal plane.

L-Acoustics X4i Loudspeaker



Previewed at NAMM and officially unveiled at ISE is X4i, a 4-inch, highly weatherized coaxial loudspeaker for installation applications. Weighing less than 2.2 pounds, X4i is the smallest loudspeaker the company has manufactured to date. Built for integration into conventional construction materials, X4i is intended for use in performing arts centers or houses of worship, where it can reportedly match the sonic signature of main L-Acoustics systems such as ARCS and Kiva. Some use in hostile environments is possible, too, as the weather-resistant X4i sports an IP55 rating and becomes watertight with a rear sealing plate. X4i began shipping in March.

Powersoft T Series Amplifiers

Designed for small- to mid-sized touring applications, the T Series line is geared to the rental market. Shipping now, the T Series consists of 2- and 4-channel models available in 3,000W and 6,000W versions supporting channel powers from 750W to 3,000W in a single rack unit. All models can deliver the same high peak voltage and can drive single 8/16-ohm cabinets at full SPL, making them useful for small systems without boxes in parallel. The high voltage can also be used for power sharing between channels for applications such as bi-amped loudspeakers or subwoofers with passive tops. In addition to analog inputs, the T Series includes AES3 and Dante inputs.

Avid Venue S6L-16C Control Surface

Avid is now shipping the Venue S6L-16C control surface, the most compact console yet in the Venue line. Accompanying the new desk, Avid also released Venue 6.1 software, which introduces numerous new features, including redundant Pro Tools recording, and a free Venue Function Pad iOS app that enables users to remotely control S6L snapshots and events. The S6L-16C uses the same Venue software and workflows as every other model in the line, allowing users to scale down existing setups from larger S6L desks without issue. The S6L-16C sports 16 faders and 32 assignable knobs.

Martin Audio Wavefront Precision Longbow

Martin Audio has expanded its Wavefront Precision Series with the introduction of a new Longbow edition. Combining Martin's self-powered MLA Series technology in a new line array format with a scalable approach to external system amplification, the Wavefront Precision Longbow (WPL) is intended for large-scale touring and installation applications. Designed as a complete system with external iKON multichannel amplifiers, automated DISPLAY optimization software and the VU-NET control platform, WPL incorporates two 12-inch (300 mm) drivers with hybrid horn/reflex loading, two 6.5-inch (165 mm) cone drivers on a midrange horn that covers the vocal frequency range from 300 Hz to 4 kHz, and three 1-inch (25 mm) exit HF drivers operating from 4 kHz upward.

QSC CX-Q Series Network Amplifiers

The CX-Q Series network power amplifiers for the Q-SYS ecosystem come in 4- and 8-channel models and sport network routing capabilities as well as advanced processing, control, monitoring and loudspeaker output load. The amplifiers also assist Q-SYS in deploying QSC technologies like Intrinsic Correction, which aims to maximize QSC loudspeaker performance and protection. The amplifiers use a Class-D hybrid power train built on the PL380 PowerLight amplifier platform. They also feature QSC FlexAmp and FAST (Flexible Summing Amplifier Technology) technologies; FlexAmp allows for asymmetric output channel loading, while FAST allows channels to be combined to deliver either higher voltage loads (up to 200 Vrms output) or higher current loads (up to 35 amps).

Earthworks SR314 Live Vocal Mic

Earthworks' SR314 microphone intended for live sound use. A precision-engineered cardioid condenser microphone, the SR314 sports a stainless steel chassis that aims to impart a retro look. Sound-wise, however, the SR314 provides a tight cardioid polar pattern that reportedly is consistent throughout the full frequency range. The mic can handle 145 dB SPL and offers an extended frequency response of 20 Hz to 30 kHz. Due to ship this month, the SR314 will include an MC4 microphone clip and 8.5-inch padded protective bag.

firstlook

Adamson Systems Engineering S-Series

Adamson Systems Engineering is expanding its S-Series sub-compact loudspeaker line with four new models. The S7 is a two-way, full-range, ultra-compact line array cabinet containing two ND7-LM16 Kevlar neodymium drivers (2 x 16 ohm) and an NH3-8 1.4-inch exit compression driver (8 ohm). The sound chamber is said to produce a slightly curved wavefront with a dispersion pattern of 100° x 12.5° (H x V). The S118 is a companion subwoofer loaded with an 18-inch ND18-S Kevlar neodymium driver using Adamson's Advanced Cone Architecture and a 4-inch voice coil. The S7p and S10p are point source cabinets containing two ND7-16 low-mid drivers (2 x 16 ohm) and two ND10-LM low-mid drivers, respectively, with an NH3-8 1.4-inch exit compression driver (8 ohm) in both.

There's more information on all the products featured at www.prosoundnetwork.com/apr2019.

Milan AVB On Tour

BY STEVE HARVEY

SSE AUDIO GROUP/GPC MEDIA

Madness recently finished an arena tour with SSE Audio Group, which added a pair of Milan-compliant L-Acoustics P1 processors to the drive rack, together with a Luminex switch.

REDDICH, UK—Toward the end of 2018, Luminex announced that SSE Audio Group had acquired so many of its GigaCore 26i network switches that it had become "one of the largest providers of Milan AVB-compliant networking solutions." The switches were first deployed on a Christmas-time UK arena tour by Madness on SSE's drive system to its L-Acoustics P.A. rig.

AVB itself has been used by a variety of production providers in recent times on tours by the likes of Dierks Bentley, Metallica and Arcade Fire, and at the Roskilde Festival in Denmark, but with the availability of the new GigaCore 26i switches, Milan AVB appears to be moving closer to reality.

The Milan AVB specification is a subset of the larger open source Ethernet AVB protocol, which has been adopted for automotive, consumer and industrial applications, not just pro AV. To focus on the specific requirements of pro AV, a group of manufacturers within the Avnu Alliance—the consortium that promotes AVB and certifies compliant products—has been working to define the Milan specification. Those companies include AudioScience, Avid, Biamp, d&b audiotechnik, L-Acoustics, Luminex and Meyer Sound, among others.

"On the one hand, there are things that might be required for Avnu certification across all industries. We do not want to spend the time being compliant with something that maybe only automotive cares about," explains Derk Hagedorn, senior product marketing manager, Avid live sound and studio consoles and controllers. On the flip side, he says, "There is something that we do want, and that we are agreeing on, that is going to work a certain way, and that we are compliant with—and that a car manufacturer isn't going to care about and isn't going to implement."

A compliance program is in place, as is a preliminary Milan-capable certification, says Ryan John, Avid's live sound principal product designer and product manager, who is on the Mi-

(continued on page 40)

Inside Graceland Live's Audio

BY CLIVE YOUNG

MEMPHIS, TN—Elvis Presley may have died more than 40 years ago, but his legendary Memphis home, Graceland, continues to attract more than half a million visitors every year, which led to the recent opening of Elvis Presley's Memphis, a 200,000-square-foot entertainment complex. Its centerpiece is Graceland Soundstage, a venue created in partnership with Live Nation that can accommodate more than 2,000 fans. Appointed with 20- by 12-foot screens at stageside, the venue opened around the turn of the year and boasts a first-year lineup that includes the likes of Boz Scaggs, Brian Setzer, Buckcherry, Chubby Checker, Frank Turner and George Thorogood.

All of these artists will be heard through a sizable Adamson Systems Engineering S-Series system P.A. designed and installed by Eighth Day Sound (Highland Heights, OH), the system sports hangs of a dozen S10 cabinets at stage left and right, while a quartet of E219 subwoofers sit under the stage for low-end support. Ensuring that the front rows don't miss out on audio coverage, four IS7p point source cabinets are used as front-fills at the stage lip.

The Graceland Soundstage covers its more than 2,000 seats with an Adamson S-Series line array system.

Adamson's presence can be felt on stage as well, as stage monitoring also is provided via the brand, with a dozen M12-A two-way monitor speakers and a pair of Point 215 subwoofers for drum subs available for every act that performs at Graceland Soundstage.

While installations are completed every day around the world, the significance of becoming part of a storied musical landmark like Graceland was not lost on CEO Marc Bertrand, who said in a statement, "The opportunity to be a part of the history of rock and roll at Graceland is a special one. We're proud to count Eighth Day Sound as one of our partners, and join them in welcoming Graceland to the Adamson Network."

Adamson Systems Engineering
www.adamsonsystems.com

briefs

Watching the Oscars with JBL

YORBA LINDA, CA—Mastermind Production Group recently updated its sound reinforcement inventory with JBL Professional (www.jblpro.com) line arrays for a total of 48 VTX A8 speakers and 24 B18 companion subwoofers. It used them to provide audio for the Elton John AIDS Foundation's viewing and after party for the Oscars, and also fielded rigs for One Love Malibu, a fundraiser that collected more than $1 million for California wildfire victims and included performances by Katy Perry, Brandi Carlile, Alanis Morisette, Robin Thicke and Gwen Stefani.

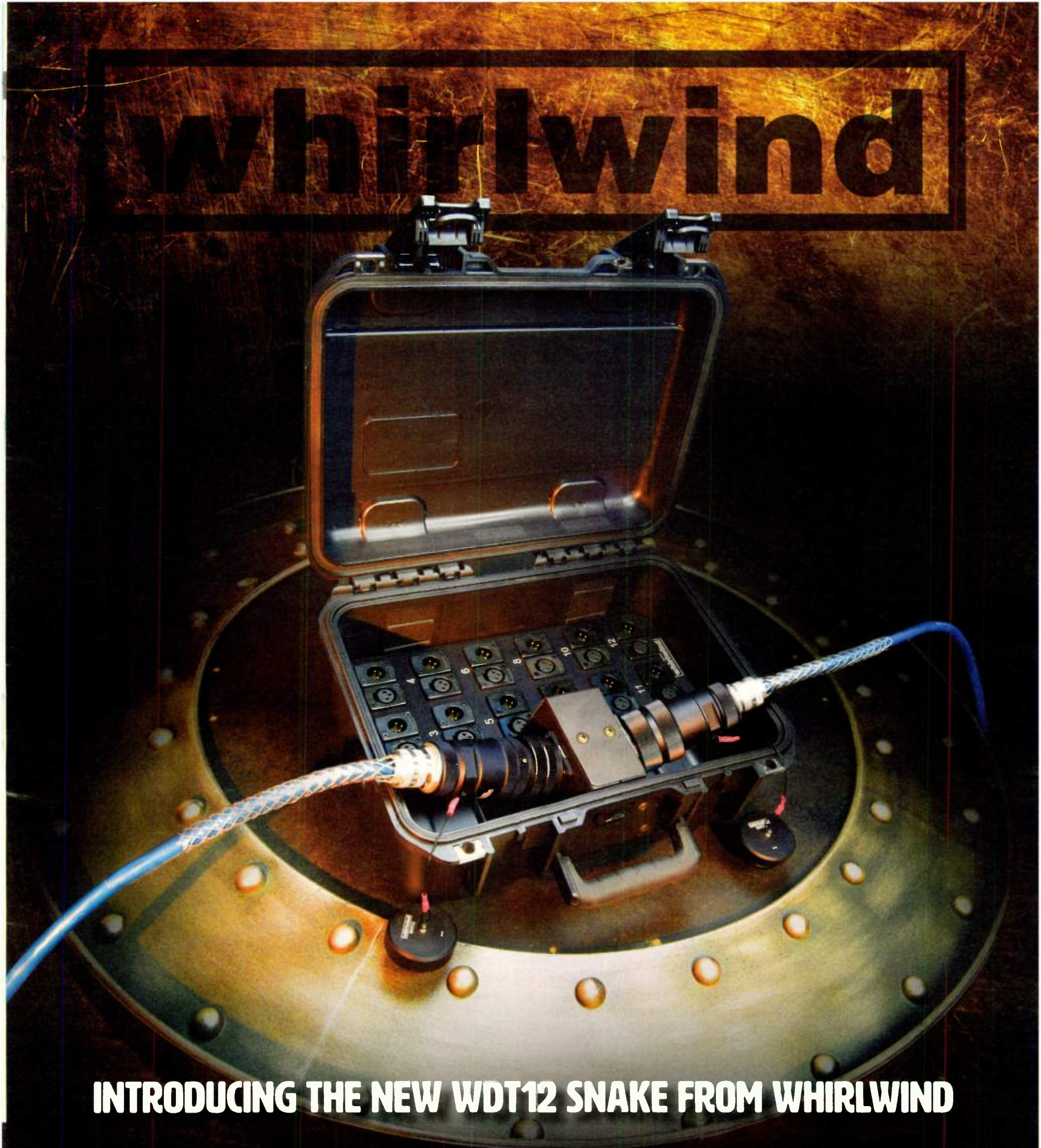
Firehouse Fires Up Shure for NBA

CHARLOTTE, NC—Firehouse Productions, working with wireless spectrum manager Frequency Coordination Group (FCG), delivered audio to TNT, TBS and NBA-TV during the 2019 NBA All-Star Weekend in Charlotte, NC. It supplied 24 channels of Shure (www.shure.com) Axient Digital as the primary wireless systems. Half of those were dedicated to on-court music events, including pregame and halftime entertainment for all of the weekend's events, including the halftime show by hip-hop artist J. Cole. In-ear monitors for performances were all Shure PSM 1000 systems, with eight transmitter channels available to feed 16 P10R bodypack receivers.

Yamaha Makes Grand Entrance

ASHEVILLE, NC—The Western North Carolina Nature Center zoological park outfitted its grand entrance plaza with a Yamaha Commercial Installation Solutions (www.usa.yamaha.com/products/proaudio) system installed by IMAGOS Entertainment of Miami, FL. A Yamaha DCP1V4S Digital Control Panel provides local control of the overall sound levels and show scenes. Mobile devices with Wireless DCP and Yamaha ProVisionaire Touch apps were set up to allow the nature center to operate the system from within the plaza. Also on hand are an MTX3 processor and XH200 amplifier.

whirlwind



INTRODUCING THE NEW WDT12 SNAKE FROM WHIRLWIND

Whirlwind is proud to introduce a new generation of industry standard DT12 connectors to fulfill the ever growing needs of broadcast production professionals. Our WDT12 series is fully compatible with all earlier generations of this connector. Designed and manufactured to the Whirlwind standard of quality, these connectors will provide years of reliable , and dependable service.

Our innovative termination box has also been designed to offer a new set of features to front line technicians. Housed in a briefcase like SKB case, the drop box is easily portable, fully waterproof when closed, and the lid can act as a rain shield while in use. Like all our Whirlwind Snakes, these are built to last, built to trust, and made right here in America.

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WRH

SHUTTERSTOCK

The Jesus and Mary Chain, never a quiet band, sport IEMs these days; lead singer Jim Reid has a pair of wedges at his feet purely as stage props.

Close to the Wedge

BY PHIL WARD

It seems obvious that IEMs are leading the way to a clearer future, and for a variety of reasons. Sometimes it's a purely practical decision. Simon Sayer, who mixed the Classic BRIT Awards concert at the Royal Albert Hall last June, pointed out that "some of the artists were performing on an LED floor, so having loads of wedges out would have spoiled the effect. It usually comes down to artist preference or logistics of staging. As a FOH engineer, having everyone on ears makes for a much better sound out front—but we don't always have that luxury."

But is it always such a luxury? Jon Burton has been mixing monitors and FOH for over 30 years, and would prefer to underline the continuing relevance of the techniques that IEM might otherwise abolish.

"Why are we still using stage monitors?" says Burton. "'Why shouldn't we?' is the question! Monitoring is specialized sound reinforcement. We use sound sources to help balance the quieter elements with the louder ones to achieve a mix where the performer feels comfortable. My first foray into IEMs was in 1993 with The Cranberries, and initially Dolores [O'Riordan, singer] hated it. I was also doing monitors for Suede, and Brett [Anderson] wouldn't even try it. Since then, we've seen a massive switch to in-ear monitoring. Has it helped? Yes. For many acts, it has given the musicians, particularly singers, a clear and consistent sound almost regardless of the venue. Has it made for better performances? Yes ... maybe. Is it a perfect solution? No."

For Burton, there is a particular trade-off between the acoustic security of in-ears and the greater musical integration of an act sharing the moving air of an open, if noisy, sound stage. "I hate doing a tour where it's all on IEMs," he continues. "It's one of the reasons I don't do monitors anymore. It leads to introspective listening practices. It can become very insular, musicians becoming obsessed with 'their' sound and not the ensemble. I like working with acts where the singer has a pair of wedges. It can mess up the FOH sound, but it can also help produce a greater ensemble performance. If you have a singer who can sing and who can listen, you can get a dynamic performance that I find is often missing when the band is reliant on IEMs.

"Of the last three acts I worked with, two of the singers were on wedges and the third on IEMs, but they were performing on a stage where the sidefill and keyboard fill were larger than most club systems. So don't write off wedges yet; they still have their place. And we haven't even gotten to the physicality of sound. It's about feeling as well as hearing."

It sure is. Witness the remarks of Michael Brennan, who has trod the boards with a huge range of acts from Primal Scream and Faith No More to KT Tunstall and, most recently, the Jesus and Mary Chain. "We were special guests with Nine Inch Nails in America," he recounts, "and they had a completely silent stage: Every single thing, including guitars, was processed through Apple's MainStage software and sent to in-ears. But even so, they had six V-DOSC 218s along the back of the stage pumping out subs so the band could feel it. Despite a really controlled, high-tech environment, there's still a need for the movement of some air by loudspeakers. It was absolutely essential for the show, even if it was a bit of a nightmare at FOH."

Jim Reid, the main vocalist in JAMC, has two purely cosmetic wedges at his feet, unconnected and bereft of signal. This is wedge-as-prop, which underpins the legacy of these boxes from rock 'n' roll mythology if nothing else. A bank of implausible Marshall stacks in the backline, only 10 percent of which are working, will do the same. Whether real or not, wedges and other stage monitoring enclosures are fighting a rear-guard action against the clinical progress of in-ears. "Most tours have a mixture of

(continued on page 47)

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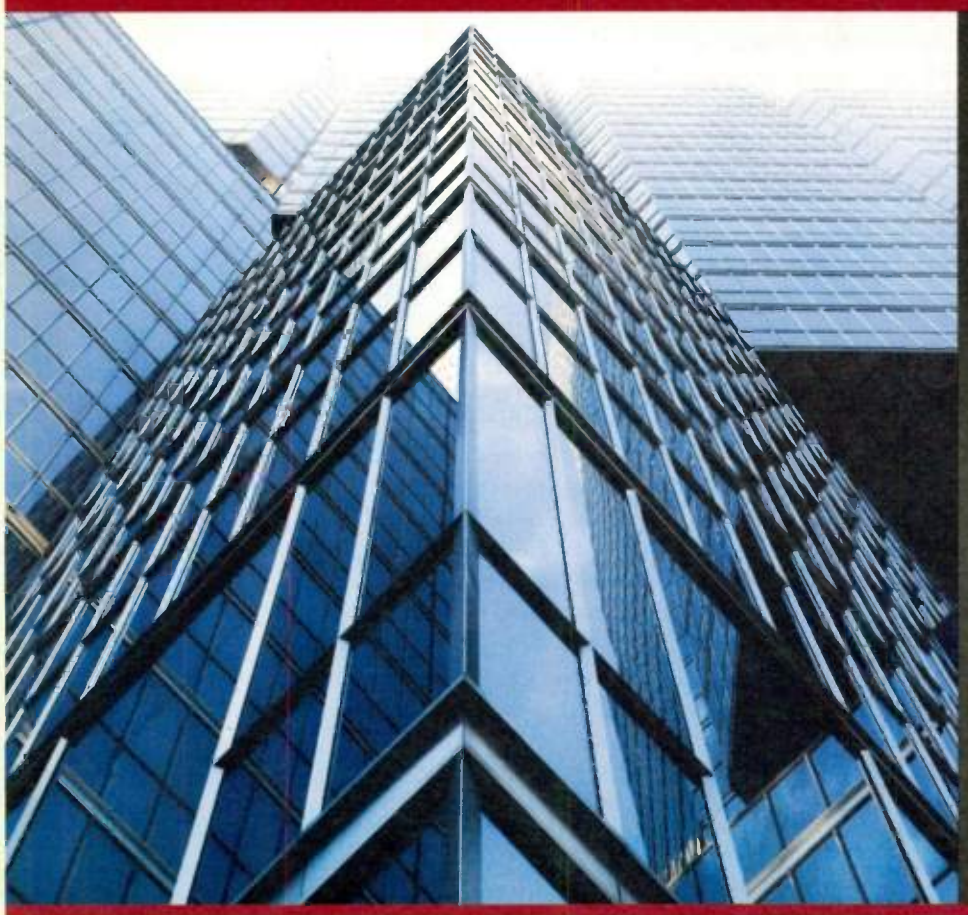

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ConCom Brings Brawn to the UFC's Sound

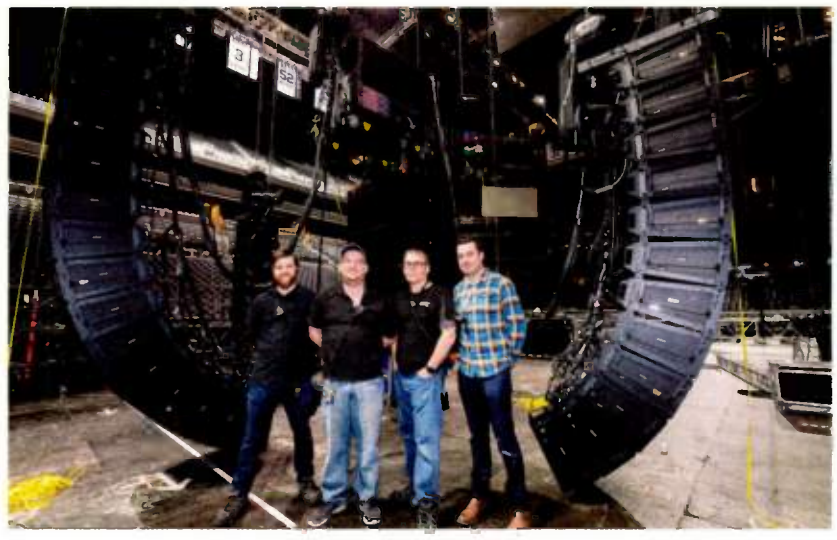
NEW YORK, NY—There are productions that assault the audience with their audio systems; this is not one of them. Instead, Ultimate Fighting Championship (UFC) mixed martial arts events leave the brawling to the professionals in the Octagon—though that's not to say the audio system is a lightweight. In fact, it's known for punching far above its class.

The principal architect behind the system is Daniel Bonneau, senior director of audio production for Bloomfield, CT-based ConCom, the production company that has provided both live AVL and broadcast production services throughout most of UFC's existence. Bonneau has been the FOH engineer for nearly all UFC events over the past decade—easily more than 300, he surmises. At each event, he mixes everything, including inputs from Sennheiser digital wireless mics with Neumann KK205 capsules and wired Neumann KMS 105 mics, on a Yamaha CL5 digital console, using a pair of Meyer Sound Amie studio monitors for nearfield reference. There are more Meyer boxes around, however—while ConCom initially used a Meyer Sound MICA-based system for nearly seven years of UFC fights, it has more recently traded up to a 120-box Meyer Leopard rig.

"The sonic quality immediately stepped up to a higher level," Bonneau recalled, but other factors played into the decision to update, including being able to scale the system to different sized-arenas, and the ability to implement a fiber optic AVB network for linking FOH to the Galileo Galaxy processors for the arrays. But as the arrays had to be flown high above the center scoreboard-mounted video screens, the question arose: Where to best place the array processors?

Bonneau's solution was to build two custom steel pods, one flown on each side of the center scoreboard, and each serving three purposes. The top portion provides storage for the cable looms connected to the three Leopard arrays covering each end of the arena; the pod's side incorporates racks for power distro, along with two Luminex AVB network switches and four Galaxy processors; and the bottom provides rigging points that support two different configurations for the 1100-LFC low frequency control elements.

The system also incorporates a total of eight flown 1100-LFC elements, along with four 900-LFC elements tucked under the Octagon.



Among the Meyer Leopard boxes put into play for a UFC event at Brooklyn's Barclays Center are (L to R) systems integration technician Eric Harrison, systems engineer Jason Macalik, P.A. technician Michael Arnold, and senior director of audio production and engineer Daniel Bonneau.

Directly underneath the Octagon mat are five Sennheiser 421 microphones that are routed directly to the 1100-LFC elements.

With a flown array trim height typically at 60 to 80 feet, a separate system is required for the floor seats. Eight UPA-1P loudspeakers are mounted to lighting fingers extending out from a lighting truss rigged over the Octagon. In addition, eight UPQ-1P loudspeakers are mounted on the main lighting truss. This configuration allows Bonneau to tailor a custom stereo mix for each of the four quadrants, with one high-impact mix for UFC executives seated at the Octagon and a boost in vocal clarity for the press section.

Meyer Sound
www.meyersound.com

ConCom
www.concom.tv

Milan AVB

(continued from page 36)

lan development team. "There will be an icon and certification, so users can just look for the Milan icon, at which point they should know that their devices can speak to one another.

"I imagine that in software, we will also find a way to indicate that a device is Milan-compliant, since anything AVB could theoretically show up in an AVDECC controller. But I don't think that has been included in the spec," adds John.

"The real meat of it is that everyone can support the same stream formats. Devices that are just talkers can use any one of many options, but all listener devices must be able to support all of the options. This ultimately means that any device that can take an AVB audio input would be able to then listen to any Milan device," John says.

In a news item on SSE's website, hire manager Miles Hillyard stated, "With Milan on the horizon, SSE has taken the opportunity to stay ahead with technology and widen its arsenal by investing in AVB-enabled systems." For the Madness tour, SSE added a pair of L-Acoustics P1 processors (one of the first Milan-compliant products to be introduced, at InfoComm 2018) to the drive rack, together with a Luminex switch. Two additional GigaCore 26i switches were added to the stage left and right amp racks.

"The initial signal path in the new system is AES from console to P1 processor, where it is converted to AVB," explains SSE assistant technical manager Keith Sujeeun, who built and configured the system. "Once converted, the signal remains as AVB right through to the L-Acoustics LA12X amplifier inputs. Locally, signals are run over Cat 6 cabling, while the long run from FOH to stage is fiber optic."

For those concerned about redundancy, "We use a pair of fibers between the FOH and stage left switches, which form an RSTP loop, and an additional pair of Cat 6 cables between the stage left and stage right switches, which form an additional loop," says Simon Gladstone, SSE's technical manager. "This allows the network to reconfigure in the event of a cable failure without manual intervention, which may not be possible during a performance."

RSTP, or Rapid Spanning Tree Protocol, is a popular redundancy solution in critical aerospace and energy networks. "The nature of RSTP means that there can be some time to rebuild the network, especially when AVB streams are present and may also need rebuilding, so this is where the analog failover comes into play," says Gladstone. "We are happy for the system to failover to analog in the event of a problem, and in the case of a cable failure, we can move back to AVB at the end of a song, once the network has healed itself."

Touring system engineers may be understandably wary of commercial-off-the-shelf switches, but Gladstone notes that GigaCore was specifically built for the entertainment industry. "This means that our existing audio guys don't need to become network engineers to program the switches. Making just a few configuration changes in the Luminex web GUI makes it very plug-and-play. The user only needs to enable AVB on the ports that require it and alter some basic redundancy settings."

SSE has been using a digital drive setup for more than eight years, initially adopting Dante because it was native to the Dolby Lake Processor. That removed the numerous conversion steps demanded by the previous analog drive system. Yet even Dante, Optocore and others introduce a certain degree of degradation, Gladstone says.

"There is no doubt for me that taking a digital signal and buffering it, reclocking it through an AES transmitter, putting it through an AES receiver, converting it to Dante/Optocore or any similar protocol, then reclocking it and rebuffering it again to get it out of the transport system and back into the AES domain, rebuffering it and reclocking again to bring it into the land of ones and zeros for the amp to interpret—degrades the signal. Nowhere near as much as our analog system, but there is nevertheless a certain amount of degradation," he says.

"Now we have AVB system processors and AVB amplifiers available, which don't require any additional conversions to transport the audio between them. Milan AVB can take this one step further because we now have leading loudspeaker manufacturers not only choosing AVB as their preferred digital network protocol, but also joining forces and coming together to define the many different AVB 'standards' available to ensure interoperability. Once again, that enables us to remove another part of the transport system from the equation."

Luminex
www.luminex.be

SSE Audio Group
www.sseaudiogroup.com

Live Sound Vet Lopez Hospitalized

BIG BEAR CITY, CA—Audio engineer/technician Greg "Chico" Lopez, longtime crew chief/RF tech and monitor tech for Neil Diamond, suffered a massive stroke on Feb. 20 as he was heading out on tour with Sebastian Maniscalco.

"Greg was driving the car on the way to airport when DeeAnna, his wife, noticed something was not quite right and suspected he was having a stroke," said Stan Miller, longtime FOH engineer for Diamond. "It turned out he suffered three mini-strokes, which led to the massive stroke while in the emergency room, and then off to surgery to clean out the carotid artery."

Lopez's career goes back more than 35 years and includes stints at Firehouse Productions, Maryland Sound, ATK Audiotek and Delicate Productions. In addition to Diamond, Lopez has toured with Yanni, Barbara Streisand, Josh Groban, David Bowie, Ricky Martin and many others.

Miller and Diamond tour archivist Sam Cole have set up a GoFundMe page to help Lopez as he works toward recovery, and donations have been flowing in from across the industry. The journey in recovery will take time—Lopez was recently taken off a ventilator and is now breathing on his own—so the goal is to raise $100,000.

"This appears to be a long road to recovery and what he really needs is mountains of positive thoughts and prayers from all of us who know and love him," Miller said.

Lopez GoFundMe Account
https://bit.ly/2EEXNV2

Greg "Chico" Lopez

Andy Sottile, Dead at 67

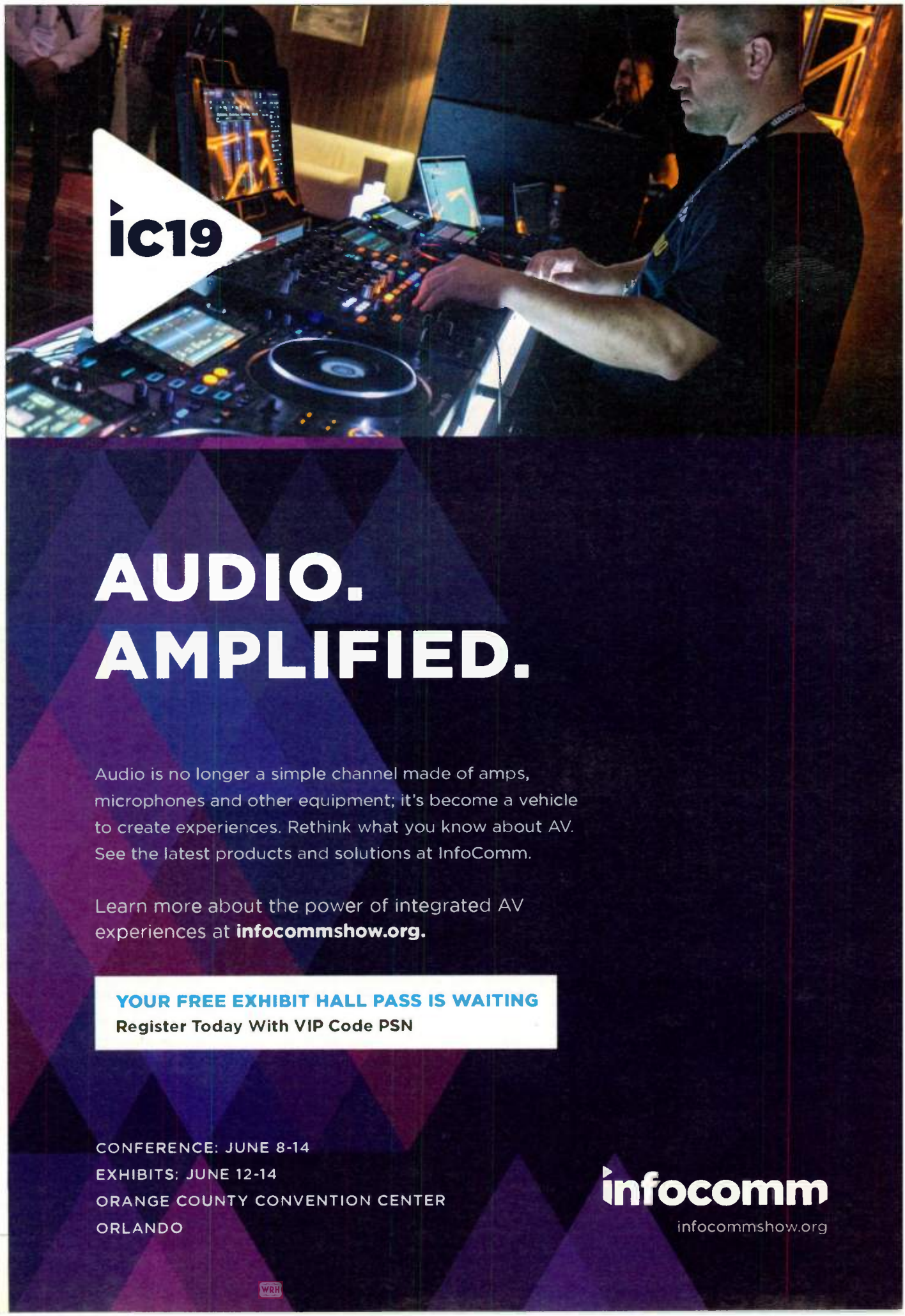
STATE COLLEGE, PA—Andrew "Andy" John Sottile Jr., longtime systems engineer for Clair Global, died Feb. 13 at his home. He was 67.

Andy Sottile

Born Feb. 21, 1951, in Baltimore, MD, he played bass guitar for Sweet Pain and Tahoka Freeway, popular State College bar bands in the 1970s and '80s.

In 1985, he became a systems engineer for Clair, where he worked until his death. In the intervening decades, Sottile toured and worked with prominent artists in the music industry, most notably spending the last decade touring the world with James Taylor and His All-Star Band. During a concert at the Frank Erwin Center in Austin, TX, on Feb. 13, Taylor and Bonnie Raitt paid tribute to Sottile, dedicating a rendition of "You Can Close Your Eyes" to him.

He is survived by Marianne Port, his wife; his sister, Michelene Sottile-Jackson (Edward) of Baldwin, MD; and nephews Andrew Sottile, Justin Sottile and Michael Sottile.



Helping Harvest House Church Grow

BOONE, NC—Parishioners at the nondenominational Harvest House Church in Boone, NC, experience God through the performing arts. Several years ago, church leaders transformed their facility into a performing arts venue that includes a recording studio, dance studio, art studio and auditorium.

To support the building's conversion, church management recently initiated an upgrade of the facility's sound reinforcement capabilities, turning to Selah Media Productions, an AV design/build firm servicing house of worship and commercial markets, to design and deploy the new sound system. The install features a variety of products from PreSonus, including new CDL series loudspeakers and two StudioLive Series III mixers: a StudioLive 32 console and a StudioLive 32R rackmount digital mixer.

Buck Roberts, president of Selah Media Productions, explained, "This project was an extensive AV retrofit. We upgraded the space from older PreSonus equipment that included WorxAudio Wave series loudspeakers and a PreSonus StudioLive 32.4.2AI mixing console. The upgrade represented a substantial improvement in sound and control capability since the space will now be used as a performing arts center in addition to its use for worship services. The upgraded SR system encompasses the new PreSonus CDL12 constant directivity loudspeakers, a StudioLive 32 40-input digital console, a StudioLive 32R rack mixer, an NSB 8.8 AVB-networked stagebox, and an SW5E 5-port AVB switch with PoE [Power over Ethernet]."

The Harvest House Church auditorium measures 70 by 65 feet, with the stage facing into the length of the room. The removable seating accommodates roughly 400 people. Selah Media Productions had installed acoustical treatment in the space during the initial installation several years back, so sound treatment was not part of the building's most recent remodel.

The new loudspeaker setup includes six PreSonus CDL12 constant directivity loudspeakers, with three enclosures each, flown for the left and right sides of the stage area. These are accompanied by four PreSonus ULT18 Active Sound-Reinforcement Subwoofers, two per side, positioned on the floor. Six PreSonus EarMix 16M AVB-networked personal monitor mixers are deployed for stage monitoring, along with two PreSonus AIR10 active loudspeakers, used as required for floor monitors. An NSB 8.8 AVB-networked stagebox provides additional I/O as needed.

Harvest House Church technical director Brett Queen and Selah Media Productions president Buck Roberts

At FOH, a PreSonus StudioLive 32 40-input digital console/recorder with motorized faders handles mixing responsibilities. This is augmented by a StudioLive 32R rackmount mixer configured for use in stagebox mode. A PreSonus SW5E AVB switch handles the system's network configuration, thus interconnecting the StudioLive 32 digital mixer, the StudioLive 32R rackmount mixer (configured for stagebox use) and the EarMix 16M monitor mixers.

Roberts noted, "The CDL loudspeakers, StudioLive 32 console, StudioLive 32R rackmount mixer, the NSB 8.8 stagebox and EarMix 16M monitor mixers are all on a dedicated Wi-Fi router for remote system control utilizing various PreSonus apps, such as WorxControl for the CDLs. Because of this, we have the ability to configure the system for any type of event that may take place in the space. Equally noteworthy, the console is easy to use and configure—and it sounds great. With PreSonus' AVB networking, it's easy to patch channels, which makes the system perfect for this venue."

With the new Harvest House Church sound system fully operational, Roberts reports that the system has been a success. "The feedback from the staff at Harvest House Church has been overwhelmingly positive," he says.

PreSonus
www.commercial.presonus.com

Wave Church Rolls with Audio Upgrade

VIRGINIA BEACH, VA—Wave Church's Great Neck Campus in Virginia Beach recently received a significant audio upgrade engineered and implemented by Virginia Beach-based S&S Productions.

The HOW now sports a pair of Allen & Heath dLive S7000 mixing systems at front of house and on stage for monitors, plus an S5000 standing in for broadcast needs. Future-proofing the system was a key consideration, as was the need to provide the volunteer staff with gear that is intuitive in operation.

"Even if you've never seen them before, Allen & Heath dLive control surfaces have an air of familiarity," S&S Productions' Cory Sprenkle said. "A world of control opens up on the touchscreens that are as simple as the smartphones we use every day. Our volunteer operators were up and running in no time with little instruction."

Scenes are widely used at the Great Neck campus by all system operators, including Sprenkle, a member of the church himself. "Every operator has a different way of doing things," he said, "and with the dLive systems, we can customize our template of controls, save it, and even import it within other shows so we can always mix in the fashion we're used to."

Wave Church sports a pair of Allen & Heath dLive S7000 mixing systems at front of house and on stage for monitors.

The various engineers monitor and control the church's Shure wireless microphone systems directly from the dLive interfaces or via a laptop computer using Allen & Heath dLive Director software. Networking capabilities were expanded with Waves, Dante and AES I/O cards, the latter of which carries digital input to the system amplifiers. As a safeguarding measure, each of the new dLive mixing systems is equipped with dual redundant, hot-swappable power supplies.

Further complementing the upgrade is an Allen & Heath DM64 stagebox and several DX32 and DX168 expanders. "We can use 128 inputs simultaneously," Sprenkle noted, "with far more than that available throughout the building."

Allen & Heath
www.allen-heath.com

C3 Church Updates with Morris

CLAYTON, NC—C3 Church recently upgraded its audio systems, moving from an aging analog setup to one based on a modern digital desk. Tackling the update was Morris Integration of Nashville, TN.

"C3's aging technology created distraction and frustration for the staff and congregation," said Morris general manager Philip Hagood. "The new DiGiCo and KLANG system will allow for more dynamic, distraction-free communication and ministry at C3." (KLANG:technologies was acquired by DiGiCo late last year.)

Morris Integration recently updated the audio inside C3 Church in Clayton, NC.

Over the course of a year, Morris advised the church, providing board demos and equipment quotes before the project eventually settled on the DiGiCo SD-10. "In the end, it boiled down to three things: quality, user interface and scalability," according to Troy Payne, production manager at the church. "The DiGiCo SD series of consoles has proven itself to be one of the best for all types of live production. The user interface is well laid out and easy for a team of volunteers to set up and operate comfortably."

The console upgrade was complemented by three SD racks with 56 inputs each, operating at a 192 kHz sampling rate. The KLANG personal monitoring systems, meanwhile, will aid the church's stable of artists and musicians.

According to Payne, they completely achieved their goal: "Morris went over and above what they were hired to do while ensuring that our expectations were met on every level."

Morris Integration
www.experiencemorris.com

Houston HOW Revamps Audio System

HOUSTON, TX—Founded just two years after Houston itself came into existence, First Presbyterian Church resides on a campus of a dozen buildings the Museum District. Known locally as a great room for organists due to the lengthy reverberation time, the main sanctuary wasn't a great listening experience for anyone else, especially when it came to spoken word.

The church brought in acoustician Wade Worley of Worley Acoustics to give the site a badly needed audio upgrade. The front of the room was covered with a pair of point source speakers, and in the back of the church, parishioners were covered by pew-back speakers that were poorly maintained—when they worked at all.

Between the broken speakers in back, a minimalist system up front and the overwhelming reverb of the room, the audio was ugly. "It always felt like we were trying to force a room that was designed for one application to do something completely different," said Rory James, First Presbyterian's media coordinator, "and the room was just kicking back against us constantly."

First Presbyterian Church in Houston recently updated its audio system with a pair of Renkus-Heinz Iconyx line arrays located on the pillars of the altar's proscenium.

"In wonderful traditional rooms like this, with long reverberation times, you really don't want to ruin the acoustics for traditional worship," Worley said. With that in mind, he brought in some Renkus-Heinz Iconyx loudspeakers for an on-site demo, and ultimately the church purchased a pair of IC32/16-R-II digitally steerable line array loudspeaker systems from manufacturer representative Native Media Sales for use as the front main speakers. Several Renkus-Heinz TRX81-DF two-way Complex Conic down-fill speakers were installed in the balcony.

"The Renkus-Heinz product has been well accepted after being seen and heard in the room," said Worley. "The church is very happy with the results."

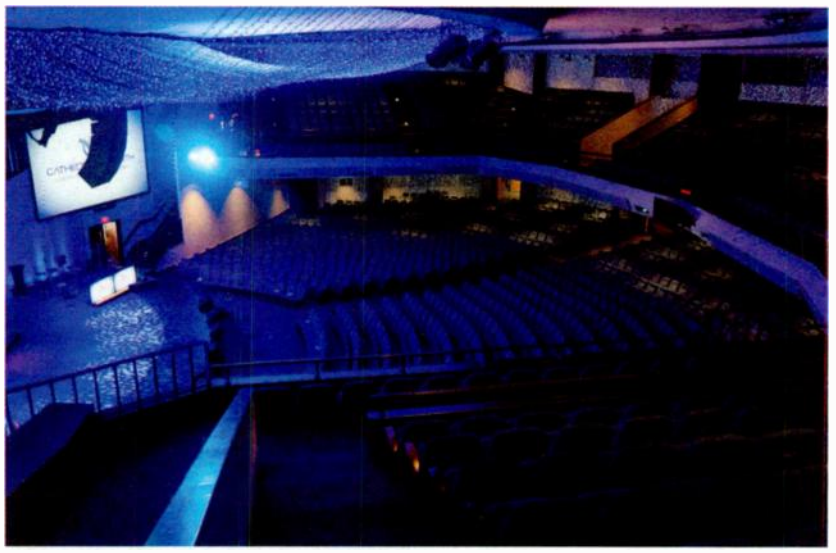
Renkus-Heinz
www.renkus-heinz.com

Cathedral of Faith Leaps to New System

SAN JOSE, CA—After 15 years of regular use, San Jose's Cathedral of Faith initiated an update of the audio system in its 2,200-seat sanctuary. A prime concern was replacing the aging P.A., which was out of date not only in terms of technology but also with regard to desired aesthetics and accommodating changing oratory styles.

Technical director pastor Rick Robinson says, "The building was built in 1983. About 15 years ago we redesigned the sanctuary with a center cluster P.A. system, but with recent modifications we've made on the inside—including a new 65-feet wide by 35-feet deep stage and a streamlined, modern layout—the previous sound system just wasn't working for us anymore, especially in terms of coverage and feedback."

Sound Image (Escondido, CA) came up with a comprehensive Martin Audio system based around eight flown Wavefront Precision Compact (WPC) cabinets on each side of the stage, two of the original subs flown in the ceiling for the balcony, and four SX218 subwoofers, two side-by-side per side, under-stage extensions beneath the line arrays. The Martin Audio solution also includes two WPM cabinets per side for balcony fills, six CDD5s under the front stage thrusters for lip fills and two CDD12s for under-balcony fills.



Sound Image installed a new audio system based around Martin Audio WPC line arrays in Cathedral of Faith.

The system is powered by six Martin Audio iK42 4-channel amps for the arrays and one iK81 eight-channel amp for the subs with two-box resolution, all with Dante capability for more flexible networking.

Cathedral audio engineer Roberta Starr noted, "The most noticeable difference was the intelligibility and even coverage throughout the space. And articulation is a very big deal because of the message in terms of speech and the music, where you want to hear the distinction between different instruments.

"The placement of the original P.A. cluster was too far above and behind the talent," she added. "We had to tweak out certain frequencies from the bottom boxes to avoid feedback, and it never sounded as good on the floor as it did in the balcony where we were mixing. Now, the live music reproduction sounds wonderful, which is also critical because we have a top-notch nine-piece band with horns and four to eight vocalists."

Martin Audio
www.martin-audio.com

Sound Image
www.sound-image.com

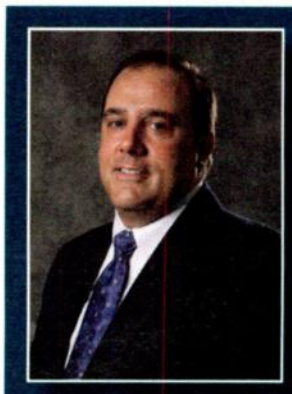
centerSTAGE TOP 10 TOURS OF THE MONTH

ACT / STATISTICS	CREW	EQUIPMENT
1 ELTON JOHN | CLAIR GLOBAL	Matt Herr (he); Alan Richardson (me); Nick Giamos (cc/se); Rolf Gerling (ame); Simon Matthews (tech)	**HC:** Yamaha Rivage PM10; **MC:** Elton-owned custom-built/designed desk; **HS:** Clair Cohesion CO-12, CO-10; **MS:** Clair 12AM, 212AM; **IEM:** Sennheiser 2000; Shure P6HW; **HA:** Lab.gruppen; **MA:** Lab.gruppen; **HARDWIRED MICS:** Shure; Audio-Technica AE6100; Radial SW8; **WIRELESS MICS:** Shure
2 METALLICA | ULTRASOUND	"Big Mick" Hughes (he); Bob Cowan, Adam Correia (me); Paul White (cc); Chris Hall (se); Jay Day (ae); Mike Bollella, Dana Daniel, Jess Hammersly, Sean McAdam, Pat Rowe (techs)	**HC:** Midas XL8; **MC:** Midas Pro9, Pro2; **HS:** Meyer Sound Lyon, Leo, Leopard, 1100-LFC, VLFC; **MA:** Meyer Sound MJF-212, MJF-210; **HARDWIRED MICS:** DPA; Shure; Audix; Audio-Technica; Fractal Audio; Radial ProD8, JDI; **WIRELESS MICS:** Shure Axient; **FOH EQUIPMENT:** TC Electronic D-Two; Korg DRV-3000; BBE Sonic Maximizer; Waves Maxx-BCL
3 JUSTIN TIMBERLAKE | CLAIR GLOBAL	Andy Meyer (he); Paul Klimson (me); Phil Kriz, Justin Lenards (se); Hugo Gudino Jr., Elliott Wiley (mse); Paul Manuel (ae); Dustin Chrysler, Carlos Lopez-Olavarria, Rachel Rozzi, Nathan Sonnenberg (techs); Kevin Leas (RF tech)	**HC:** DiGiCo SD7; **MC:** DiGiCo SD7; **HS:** Clair Cohesion CO-12, CO-10, CP-6, CP-118, CP-218; **HA:** Lab.gruppen PLM 20000Q; **MA:** Lab.gruppen PLM 20000Q; **OTHER:** Radial JX44, SGI44 Headload V8 w HL19-RA rack kit
4 MICHAEL BUBLE | SOLOTECH	Craig Doubet (he); Marc L. Depratto, Louis-Phillipe Maziade (me); Jonathan Trudeau (cc/se); Charles Deziel (rf); Francis Lussier, Sebastien Richard, Martin Albert (tech)	**HC:** SSL Live 500; **MC:** (2) DiGiCo SD7; **HS:** Meyer Sound Leo, Lyon, 1100-LFC, Mina, JM1P, 900-LFC, Mica, 700-HP; **MS:** Meyer Sound MJF 210, JM-1P; **IEM:** Shure PSM 1000, P9-HW; Albatros PH9B; **HARDWIRED MICS:** DPA 4060; Shure Beta 52; Sennheiser e901, e904, MKH-416 P48; AMT ERTS; Radial PZ-DI, J48, JDI; Schertler DYN-G-P48; Neumann LM 184; Audix i5; AKG C419; **WIRELESS MICS:** Shure Axient Digital with DPA 4018 S capsule; Sennheiser SKM 6000 with KK 204 capsule; **FOH EQUIPMENT:** Meyer Sound Galaxy, Gigacore; Focusrite RedNet A8R, RedNet MP8R; Rational Acoustics SMAART 8; Apple Mac Minis; RME HDSPe; Universal Audio UAD Live Rack with Ultimate Bundle; **MONITOR EQUIPMENT:** Apple Mac Pro; Avid Pro Tools (recording); Lexicon PCM 92
5 BOB SEGER AND THE SILVER BULLET BAND | CLAIR GLOBAL	Bruce Knight (be); Mark Harvey (me); Paul Jump (cc/se); Calvin Welshans (ae); Jacob Caples (tech)	**HC:** DiGiCo SD-5 with SD Racks; **MC:** Yamaha Rivage PM10 with Rio Racks; **HS:** Clair CO-12, CO-10, CP-218, FF-II, P-2; **MS:** Clair SRM; **IEM:** Sennheiser 2000; Shure PSM-6HW; **HA:** Lab.gruppen PLM 20K44; **MA:** Lab.gruppen PLM 20K44; **HARDWIRED MICS:** Audio-Technica AT 4047; Shure Beta 91a, SM 57, KSM8, KSM 313, KSM9HS; AKG C314; Radial J48, JDI; Sennheiser MKH-416, e935, e904; Royer SF-24L, PSM-SS24; **WIRELESS MICS:** Shure UR4D with KSM 8, KSM9HS; **FOH EQUIPMENT:** Waves Mercury bundle and SSL 4000 collection; Neve Portico II Master Buss; API 2500 stereo compressor; Alan Smart C2 stereo compressor; Urei 1176ln; TC Electronic Finalizer; TASCAM SS-CDR200, CD-01U
6 FLEETWOOD MAC | CLAIR GLOBAL	David Morgan (be); Myles Hale, Blake Suib (me); Thomas Morris (cc/se); Ken Hottenstein, Chris King (stage e); Chris Fulton, Amy Bammarito (techs)	**HC:** DiGiCo SD5; **MC:** Avid S6L; DiGiCo SD5; **HS:** Clair Cohesion CO-12, CO-10, CO-8, CP-218 subs; **MS:** Clair 12AM, ML-18, R-4III; **IEM:** Shure PSM 1000, PSM600; **HA:** Lab.gruppen PLM 20000Q; **MA:** Lab.gruppen PLM 20000Q; **HARDWIRED MICS:** Earthworks SR40, DP30, SR25; Shure KSM8, Beta 181C, PGA81, Beta 91a, Beta 56, KSM8, KSM 32, KSM 313, KSM 27, KSM141, SM 57, SM 58, Beta 98; Sennheiser e935, e602, e902, MD421, MKH-50; Audio-Technica AE 4100, AT 4047; AKG C414B; Audix D4; Beyer M201TG; Neumann KM 184; Royer R121L; DPA 4099; Radial JDI, J48, JX44, JR5, SGI44, JX62, Firefly Tube DI; **WIRELESS MICS:** Shure Axient; **FOH EQUIPMENT:** Bricasti M7; TC Electronic M6000; Eventide Eclipse; Lake LM44; Waves Mercury Bundle, SoundGrid; AAX McDSP Live Pack; **MONITOR EQUIPMENT:** Yamaha SPX990
7 ERIC CHURCH | CLAIR GLOBAL	Billy Moore (be); Marc Earp (pm/me—artist); Ben Rigby (me—band); Jared Lawrie (cc); Nathan Lowe (m tech); Dustin Anderson, Melissa Terrazas (techs)	**HC:** (2) Midas Heritage XL4; **MC:** (2) Avid Venue Profile; **HS:** Clair CO-12, CO-10, CO-8, CP-218; **IEM:** Sennheiser G3; **HA:** Lab.gruppen PLM 20000Q; **WIRELESS MICS:** Shure UR with Telefunken M80 Capsule; **FOH EQUIPMENT:** TC Electronic D-Two; Bricasti M7; Yamaha SPX 990; Tube-Tech CL 2A; Drawmer DS404, 1968, DL241, DS201, DS501, DL441; Empirical Labs EL-8 Distressor, Fatso; Manley ELOP; API 527, 2500; dbx 560A, 520, 903; Neve 543; **MONITOR EQUIPMENT:** Waves Live Bundle; **OTHER:** Radial JX44, SGI44, JR5, J48
8 BRUNO MARS | CLAIR GLOBAL	Chris Rabold (be); Ramon Morales (me); Chris Sullivan (cc/se); Paul Tobey (cc/rf tech)	**HC:** DiGiCo SD7 with SD Racks; **MC:** DiGiCo SD7 with SD Racks; **HS:** Clair Cohesion CO-12, CP-218; **MS:** Clair CO-8, CM-22, CP-118; **IEM:** Shure PSM 1000; **HA:** Lab.gruppen; **MA:** Lab.gruppen; **HARDWIRED MICS:** Shure SM 81, 91a, 52a, Beta 181, SM 58, 57; AKG C-414, 45; Sennheiser MKH 451EB, MD 421, MD 409; Beyer M 88 TG; Audio-Technica; Telefunken M80, M60, TK62 capsule; Radial J48, SW8, EXCT-SA, X-Amp Reamp, SGI, J+4, SW8; Countryman DI; **WIRELESS MICS:** Sennheiser 9000 with 9235 handhelds; **FOH EQUIPMENT:** Waves Mercury Bundle, SSL Bundle, Abbey Road Bundle; Bricasti M7; Empirical Labs EL-8 Distressor; Midas XL42; Chandler TG1; TC Electronic 2290; **MONITOR EQUIPMENT:** Waves SSL 4000, API Bundles
9 KISS | CLAIR GLOBAL	Adam Stuart (be); Scott Diamond (me); Don Baker (cc/se); Scott Megrath (ae); Robert Taylor III, Casey Harriman (tech)	**HC:** DiGiCo SD7 Quantum with SD Racks; **MC:** DiGiCo SD7 Quantum with SD Racks, Yamaha QL-1 (drummer); **HS:** Clair CO-12, CO-10, CP-6, CP-218; **MS:** Clair CM-22, 12AM, CP-118; **IEM:** Shure PSM 1000, Shure P9HW; **HA:** Lab.gruppen PLM 20K44; **MA:** Lab.gruppen PLM 20K44; **HARDWIRED MICS:** Shure 52a, Beta 91a, SM 57, SM 58, VP-88, KSM 137; Neumann TLM 102; Sennheiser MD-421, MKH-416, e935, e904; Audio-Technica AT 4050, AT 3031; Radial J48, JDI, JX44; **WIRELESS MICS:** Shure Axient AD4Q; **FOH EQUIPMENT:** Waves Mercury Bundle, SSL Collection 4000, TASCAM SS-CDR250N; Bricasti Design M7; Empirical Labs EL-8; API 2500
10 TRAVIS SCOTT | CLAIR GLOBAL	Ken "Pooch" Van Druten (be); Justin Hoffmann (me); Tim Shaner (cc); Kory Lutes (m tech); Jordan Turner (rf); Tim Joyce, Jesse Cole (tech); Ian Kinersley (pm)	**HC:** DiGiCo SD12; **MC:** DiGiCo SD12; **HS:** Clair Cohesion CO-12, CO-10, CP-218; **MS:** Clair CM-22, CP-218; **IEM:** Shure PSM 1000; **HA:** Lab.gruppen PLM 20000Q; **MA:** Lab.gruppen PLM 20000Q; **WIRELESS MICS:** Sennheiser Digital 6000; **FOH EQUIPMENT:** Waves SSL4000, C6; **MONITOR EQUIPMENT:** Waves SSL4000, C6

LEGEND: (he) house engineer. (ahe) ass't house engineer. (be) band's house engineer. (me) monitor engineer. (ame) ass't monitoring engineer. (bme) band's monitor engineer. (se) systems engineer. (ae) ass't engineer. (tech) technician. (cc) crew chief. HC: house console. MC: monitor console. HS: house speakers. PMS: personal monitor systems. MS: monitor speakers. HA: house amplifiers. MA: monitor amplifiers.

Top 10 grossing tours according to *Billboard*. Some tours did not report grosses for all shows; rankings may be affected as a result. Equipment and crew information are provided by the respective sound reinforcement companies.

60SECONDS



MARK HUMRICHOUSER
Shure

Q: What is your new position and what does it entail?

A: In my new position as vice president of global sales, I am focused on leading Shure's global sales team, which oversees our worldwide sales operations for pro audio, retail, integrated systems and emerging markets. We've tactfully transitioned to a vertical-focused market strategy, which has allowed us to tailor our sales and marketing teams for each specific vertical. Having this specialization across each market has empowered us to achieve success and better communicate the array of relevant applications of our products and services.

Q: How has your background prepared you for your new role?

A: I've been fortunate to experience Shure from a multitude of different perspectives—as a customer, as a marketer, as a seller, as a channel lead, and even from the perspective of a market competitor at one point in my career. I've progressed from the seller position to a managerial role, but have remained highly "hands-on" with the customer throughout my career. These varying roles have provided me the opportunity to understand and truly integrate with the inner and outer workings of Shure as a company.

Q: What new marketing initiatives are we likely to see from the company?

A: Shure is always pushing itself to get closer to its customers and channel partners; we want to understand their needs and wants, build community and ultimately help make them more successful in whatever vertical they operate in. We're highly invested in marketing and speaking more directly to each vertical, versus the broader marketing approach we've taken in the past. For example, we understand that the traditional MI customer is evolving, as this vertical has begun to care more and more about content creation. We've also acknowledged that with the convergence of AV and IT, there is a whole new customer base that we need to cater to. Our dedicated approach to engaging with each of these demographics is much more niche and calculated because of this industry evolution.

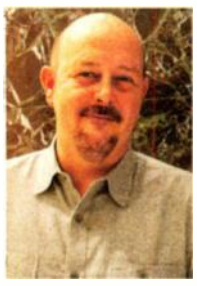
Q: What are your short- and long-term goals?

A: In the short term, we'll continue to focus on the reorganization and prioritization of each of our market verticals. Rather than operating under geographic autonomy, our goal is for each and every region to operate under one Shure direction, ensuring that we are driving forward globally consistent initiatives—all while remaining locally relevant.

In the longer term, our goal is to transform and evolve alongside our customers. As their needs change, so must our priorities. We have to remember that what got us here isn't going to keep us here. We must remain open to change, evolving customer needs, changing buying habits and so much more. That said, as much as we evolve and grow, we still wish to stay true to our foundation and brand legacy.

Q: What is the greatest challenge you face?

A: Technology is a beautiful thing, and it has allowed us to communicate efficiently and effectively across regions; we're able to make quick, informed decisions. Technologically, the world is getting smaller, but we have to remember that it's still a big landscape to learn and manage. Additionally, on a daily basis, we're challenged to increase our pace of innovation from both a product development and channel distribution standpoint.



Rob Cowles

Meyer Sound has announced four hires and a key promotion. **Rob Cowles** has been appointed to the newly created position of director, product marketing. Reporting directly to senior vice president of marketing John McMahon, Cowles will take on leadership and responsibilities in the areas of competitive marketing, vertical market strategies, digital initiatives, and customer relations management. Cowles comes to Meyer Sound from the high technology and entertainment sectors, having held prior senior marketing positions at THX, LucasArts, CNET and AOL Time Warner. He is based at Meyer Sound's Berkeley headquarters campus.

Daniel Rivera

Daniel Rivera, with Meyer Sound since 2016, has been promoted to business development specialist, a role where he will connect with customers by working closely with architects, consultants and end users across multiple vertical markets.

Taking Rivera's prior position as business development house of worship specialist is **Chris Gille**. Gille has held key technical management positions at Willow Creek Community Church in Illinois and at Eastside Christian Church in Anaheim, among others.

Chris Gille

Kayla Knoll returns to Meyer Sound as sales support engineer, Midwest. Knoll served at Meyer Sound from 2006 to 2012 in the design services and marketing departments before accepting a position in AV project management in the Midwest. In her new role, Knoll will work with regional sales managers to reinforce sales support activities while maintaining relationships with dealers, integrators and end users. She is based in St. Louis, MO.

Kayla Knoll

Rich Hyland

Filling a similar position is **Rich Hyland**, newly appointed as regional sales engineer, Southern California. Hyland comes to Meyer Sound from the University of Southern California's School of Cinematic Arts, where he served as sound department manager, overseeing production and post-production equipment and facilities. Other prior experience includes creative and technical positions at Geffen Records and Capitol Records.

Christophe Anet

QSC has named **Christophe Anet** product marketing manager for the company's Live Sound Division, where he will create, curate and refine product marketing content for the company's live sound products. Fluent in French, English, Italian and German, Anet joined QSC two years ago as product specialist for the EMEA region. His background includes work at Genelec Oy, where he held several positions, as well as time as a project manager for WSDG and employment at FM Acoustics in Switzerland.

Riedel Communications has promoted **Justin McClellan** from his previous role as system consultant to business development manager for the southern United States. At the same time, **Stephen Remich** has moved from technical service to a system consultant position. McClellan now reports directly to Joyce Bente, president and CEO of Riedel North America, and Remich reports to Rick Seegull, manager of system consulting at Riedel. Having served as system consultant for Riedel since 2013, McClellan managed RF and communications systems based on Riedel solutions for numerous high-profile events and awards shows. Previously he was RF/comms tech/systems engineer for Alford Media Services. Remich is a recent graduate of Azusa Pacific University (APU), where he received a BFA in cinematic arts.

Justin McClellan

Stephen Remich

Cynthia Wong

David Popovski

Solotech has appointed both **Cynthia Wong** and **David Popovski** as senior business developers for the company's Toronto office. Both report directly to Mitchell Sadofsky, sales director. Wong is developing business opportunities for the entertainment, theater and corporate sectors, while Popovski is doing the same for the entertainment, corporate, higher education and sports sectors. With more than 20 years of experience in the audiovisual and lighting industries, Wong has knowledge of sales and systems design and project management, and has developed longstanding relationships with specifiers and engineers.

Meanwhile, drawing on his nearly 15 years of experience in the information technology and agri-food industries for companies such as Nestlé and Wrigley, Popovski has gained knowledge of sales and project management and developed an extended network of contacts.

OWC Thinks Big (And Green)

LARRY O'CONNOR, FOUNDER/CEO, OTHER WORLD COMPUTING

BY CLIVE YOUNG

Other World Computing's origin story sounds like something out of a Disney TV movie instead of the founding of a top storage, connectivity, software and expansion solutions provider. In 1988, 14-year-old Larry O'Connor founded a company in the family barn with the goal of re-inking printer ribbons for the denizens of Woodstock, IL. A year later, he expanded into computer memory chips, and that's when things took off.

"Memory prices had gone up for a brief period of time due to an earthquake in Taiwan," he recalled at this year's NAMM Show. "Prices came back down [overall], but in my marketplace, they didn't." Compounding the problem for local computer users, the nearest repair shop was 45 minutes away. When the young entrepreneur needed to upgrade his machine, he had to be driven to the store, where he made a shocking discovery as he watched the upgrade take place. "This was something not only could I do, but anyone could do it—and in about five minutes!" he said. It didn't take long to spot an opportunity. "I could effectively offer these memory kits for about a quarter of what they were being sold for, and I could show people how easy it was to install. That's how we got started."

The privately held company turned 30 last October, and in the intervening decades, it has grown into a computer expansion solutions powerhouse with a widespread customer base. "Honestly, we didn't even realize we had an audio-video following until five to seven years ago," he said. "It's a big company and we listen to our customers. First off, we're our own customers. We build things the way we want them to work. We listen, we come to NAMM, we go to NAB, we go in the studio. We listen to the folks who are using the product for what their needs are. We've gotten to where we are because we build things to a good specification, we post what is inside—what the chipsets are and why things work the way they work."

Listening to customers also revealed why those offerings—storage, docks, memory and other products—appeal to end users in specific industries, and the company keeps those needs in mind as it sweats the details: "We build things using common sense, because there's a right way to build product, a right way to build solutions for performance and reliability," said O'Connor. "Plug the wrong hard drive in and you can actually add a little bit of noise and feedback into your system. These are details that it doesn't matter if you're audio or video or a basic user—there's a right way to build stuff. What we do is common sense; this really is true. It's not common in a lot of the products out there."

At the NAMM Show, the company's focus was on presenting storage and connectivity solutions for music industry pros, drawing attention to its Envoy Pro EX SSDs, which sport a Thunderbolt 3 interface, transfer speeds up to 2,500 MB/s and capacities up to 2 TB. Elsewhere at the booth was OWC's line of Mercury Elite Pro mini storage solutions, offered in a 2.5-inch Serial ATA (SATA) hard drive or SSD design, with eSATA and USB-C connection options, up to 540 MB/s transfer speeds and up to 4 TB storage capacity. For those with no need for extra storage on their computer, there was still gear of interest, such as a 14-port Thunderbolt 3 Dock aimed at Mac laptop users.

> "To understand how things work is important—it supports the creative process."
> *Larry O'Connor*

Also of interest: "Our ThunderBlade SSD, which goes up to 8 TB," said O'Connor. "It's overkill for audio, but when you get into video or audio/video, then you're in the game. It's literally the fastest Thunderbolt product on the planet. The number-one consumers of that product are DITs [digital imaging technicians in the film industry], because they need to duplicate their data correctly. They need to get the dailies out and duplicate the data even right after they get the card from the camera, and there's nothing faster—you're doing about 1 terabyte every 10 minutes between two ThunderBlades with 2.5 gigabytes a second of throughput."

OWC outgrew the barn before the end of the 1980s, and these days it's based in a 37,000-square-foot corporate headquarters designed to Platinum LEED (Leadership in Energy and Environmental Design) standards. Doubling down on that green philosophy, in October 2009, OWC flipped the switch on a 194-foot-tall Vestas V39 500 kW wind turbine to take care of its power needs, making it reportedly the first technology manufacturer/distributor in the U.S. to be entirely wind-powered. The turbine generates roughly 1,250,000 kilowatt hours per year—essentially twice as much as the facility actually needs to operate. The OWC campus also sports the largest privately-held solar array in Illinois and recycles 94 percent of the solid waste generated on-site.

While the company may know a bit about selling expansion products, it's been doing some expansion itself. In early January, prior to CES, it purchased competitor Akitio, which produces external computer storage products and accessories with an emphasis on Thunderbolt 3 technology. Akitio also develops software aimed at improving DIT workflow with capabilities such as simultaneous data duplication, screen shots and security checks. O'Connor noted in a statement at the time, "This acquisition gives us the opportunity to strengthen our core prosumer lineup and market reach with photography, video and music pros with some really exceptional new offerings. Our product lines and brands are quite complementary, with Akitio bringing a strong reputation in the Windows space and segments like performance gaming, AR/VR [and] high-end creative strengths to our base. I see tremendous opportunities ahead for our team and our customers."

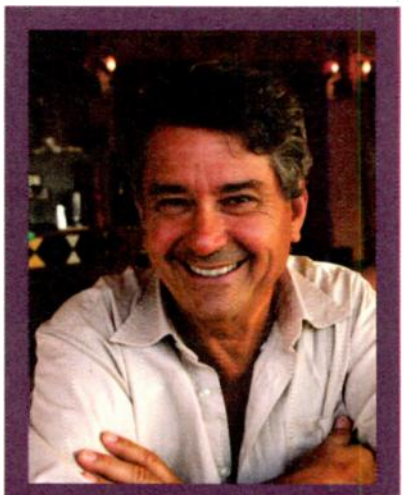
While OWC may be broadening its presence, it is still largely centered around the idea of educating and empowering users to make the most of their existing systems by working on the computers themselves. Arguably, while it may be OWC's bread and butter, it also falls in line with the company's strident green efforts, as upgrading a system and prolonging its lifespan is ultimately better for the environment. And for those who would say they are too inept to root around inside their machine, O'Connor would beg to differ: "Everything is hard until you pull the curtain back. We've always done videos that show people how to do the installations. Not everything is user-installable, and we'll say, 'Hey, this is really complicated; you've got to know what you're doing,' but 95 percent of it takes less than 10 minutes. Maybe 4.5 percent of the stuff is longer than that but anyone can do it; you just have to be patient and follow the directions."

Given that the pro audio and recording industries are built on the work of DIY tinkerers, OWC's ethos is a good fit. As O'Connor noted, glancing around the NAMM Show floor, "Musicians and producers and the folks who do this are amazing. It's unbelievable how technology-savvy these folks are, and if they're not, they want to know, because to understand how things work is important—it supports the creative process."

Other World Computing
macsales.com

Growing Through Acquisition, Part One

For the most part, business owners want to grow their companies, and there are several ways it can be done. You can grow your company organically, which means working within your means by taking the slow and steady route, or you might want to accelerate the process by bringing in investors. The upside to having more dollars in the bank is that the money allows you to add staff, increase inventory levels, improve systems or move to a larger facility. The downside is that you are no longer autonomous; you will have to report back to those investors. For some entrepreneurs, this arrangement works perfectly well; for others, reporting to someone else is simply not in their DNA.



BY PETER JANIS

Peter Janis, former CEO of Radial Engineering, is a 40-year veteran of the music industry. Exit Plan (www.exit-plan.ca), his consulting firm, assists business owners to build their companies and prepare them for eventual sale.

Probably the quickest way to grow is through acquisition, as acquiring a company can instantly bring on technologies and new markets that might otherwise take years to develop. The first thing you want to do before you jump into acquisition mode is ask yourself, "What type of company would best integrate with what we do?"

Over the years, I acquired a number of companies and brands—the first was Tonebone. I needed a qualified engineer I could trust, and I knew the guy who had started Tonebone. In fact, he and I had originally worked together well over a dozen years before, when I was a musician. Back in the 1970s, devices like guitar amp switchers were not available and he would take my ideas and bring them to life. Now, with a good engineer, I was able to redesign the Radial JDI, making it easier and less expensive to build, which made it more competitive in the market. With Tonebone, because the brand sported a tube overdrive, we were able to attract our first endorsements with players like Steve Lukather and Eric Johnson. This put Tonebone and Radial on the map.

As we were developing more Radial and Tonebone products, we launched Primacoustic. In this case, we did not acquire Primacoustic; instead, we replaced Sonex, a brand we were importing. Sonex was moving away from the studio market, yet I could see that with the advent of the personal computer, it would not be long before that digital technology would enable home studios to deliver exceptional sonic quality. To participate in that seismic shift, I felt that studio acoustics would be a great avenue to pursue, as there were relatively few competitors at the time.

Drawing on my experience at Fender earlier in my career, I believed that trying to sell all products under a single brand was a challenge. Back then, Fender had some great P.A. gear, but it simply did not have the same appeal as Shure microphones, Soundcraft mixers, Crown Amplifiers or JBL speakers. Honda may make a good car or lawnmower, but I would not expect the company to be successful at selling guitars. The Aha Moment from that experience, then, was discovering the importance of a brand and creating a market personality—which is what we did with Primacoustic.

Supporting multiple brands requires multiple marketing budgets and, in many cases, a separate sales force, particularly if you intend to enter a new market segment. It costs more to do at the outset, but I believe the long-term rewards are worthwhile. We discovered this when we decided to sell acoustic panels to the AV installation market. Although our sales team had strong relationships in MI and pro audio, we had not yet developed inroads in the contractor market.

The next brand we acquired was Reamp. While working with Joe Satriani, Dave Cuniberti had come up with the first commercially available Reamper. Since a Reamp is basically the opposite of a direct box, I felt that if we could corner both ends of this market, this would put Radial in a strong position. What I liked most about Reamp is that it was not only a brand name, it also owned the name of the process. Think Kleenex and you will get the picture. To pull this off, I agreed to pay John a royalty for each of the products that used his process, and as part of the deal, I negotiated a first right of refusal for the brand. When John decided to retire, he called me up and we closed the deal.

Wedges

(continued from page 38)

both—even the older bands," reflects Brennan, "who now realize that they have to protect their hearing a lot better."

Health is probably the issue that will win the day, along with scalability. Both topics have exercised Chris Marsh, FOH engineer for Ed Sheeran, throughout the British star's meteoric rise from modest solo gigs to mammoth solo gigs. Despite no change in his instrumentation or presentation, the sheer hike in venue capacity has necessitated an update in the monitoring solution, if not an upgrade, in creative terms.

"Ed started with just wedges, doing the pubs and clubs where in-ears are an expensive commodity," Marsh reports. "He likes to hear the audience and walk in and out of the audio source, feeling the space around him. But as the gigs got bigger, the monitors got louder, and even with just an acoustic guitar and vocal, we ran out of headroom. I became concerned for his health! We did a 6,000-crowd marquee in Colombia and the noise was unbelievable; he couldn't hear a thing. I looked at him and said, 'This is where I have to start using in-ears, isn't it?' It's now a necessity rather than a choice, and it has taken some of the pleasure out of playing; he pops out one of the ears frequently in order to be able to hear the crowd and sometimes play along with them."

> "If Ed Sheeran had a choice, I think he would only use floor monitors; that's where he's most comfortable, but unfortunately, there's a limit to what you can achieve."
> *Chris Marsh*

There are, however, wedge monitors at his feet. "We've kept them for two reasons," Marsh explains. "Firstly, in case his in-ears go down for any reason, so he still has a reference; they're 20 dB quieter than they used to be! And secondly, when he does pop out one earpiece, he still has audio in both ears—one in-ear, and the other using the wedges."

According to Marsh, when Sheeran uses the wedges, they're not loud and detailed enough to enable him to pitch correctly, or to build his famous loops using the custom foot pedals that help him create such rich musical textures as a single performer. For this signature technique, IEM is essential. "Nowadays the wedges are really for the banter with the audience," adds Marsh. "If Ed had a choice, I think he would only use floor monitors; that's where he's most comfortable, but unfortunately, there's a limit to what you can achieve."

It seems, therefore, that something is always lost when earpieces build their inevitable barrier between the performer and the room—even for a solo act with a good deal of very intimate material, and not just the ensemble dynamics of a high-SPL production. Recognizing this, the loudspeaker manufacturers continue to invest generously in the stage monitor format, which lives on below the radar of stadium mega-tours in more modest circumstances.

Broadcast

(continued from page 1)

tocol support," says John Schur, president, TV Solutions Group, the Telos Alliance. AoIP has settled on AES67 for interoperability, but control protocols have not converged on any single standard. While the AES70 architecture is being better defined, he says, there are likely to be multiple control protocols in use. Consequently, "There are also a growing number of IP interface products that bridge between AoIP formats and various control protocols," he says.

Mobile broadcast companies integrated Focusrite's RedNet interfaces early in the AoIP transition, according to Rich Nevens, vice president of global sales and marketing, Focusrite Pro. Now, AES67 capabilities in broadcast consoles are enabling remote audio capture and monitoring using non-proprietary portable Dante PoE interfaces. "One prominent broadcaster recently took delivery of over 40 of our RedNet X2P 2+2 Dante interfaces, which can be easily discovered, controlled and status-locked over the network," Nevens reports.

IP is by far the most prominent trend in the industry, according to manufacturers, but immersive audio is another driver of change, if only because it demands more of everything, including the number of channels and hardware such as speakers. Here too, AoIP offers a solution. "With the growing requirement for higher channel counts driven by demand for Dolby Atmos content in long-form TV post-production, and now making inroads to live sporting events, we have seen more facilities transition to AoIP for its simple integration into existing facilities and easy deployment in remote applications," adds Nevens.

Working for a speaker manufacturer, Will Eggleston, marketing director, Genelec USA, is able to observe the adoption of immersive formats not just in post houses but also in broadcast and streaming transmission—for quality control, for instance. Judging by the purchase orders, says Eggleston, these companies, which must remain nameless, are building a significant number of rooms. "We're not talking onesies and twosies; it's a big number," he says.

On the topic of immersive room environments, Eggleston, noting that the protocol for SOFA files (spatially oriented format for acoustics) has existed for a while, reveals that "we'll be making a pretty big announcement about how we're going to attach ourselves to that business and be able to generate HRTF files for people" at an immersive conference in late March. AES69, published in 2015, standardized the exchange of head-related transfer functions (HRTF) and directional room impulse responses (DRIR), enabling personalization in immersive environments.

The new ATSC 3.0 transmission standard includes the ability to deliver immersive audio as well as potential personalization features such as alternate languages or dialogue level controls. As ATSC 3.0 gains momentum, U.S. broadcasters have committed to putting a significant number of new channels online by 2020, says Schur. While the initial rollout will not support all the features that Next Generation Audio offers, he says, "Consumer devices supporting the immersive and interactive features of NGA are expected to become readily available in early 2020. ATSC 3.0 provides an opportunity for manufacturers to create flexible solutions to support the initial phases of the adoption, but also to give broadcasters the path to deploy the features in the future that are important to consumers."

Momentum also continues to build behind REMI, or at-home remote broadcast production workflows. "For live event production, traditional live consoles and distribution methods are being replaced with remote production systems, where costs can be reduced and operations scaled with centralized intelligent mix engines and minimal operator interaction," says Schur.

In these remote production workflows, a box of DSP sitting at a distant site supports latency-free monitor mixes and IFBs, while the mixer back at the plant has full control of the remote inputs on the console. At the upcoming NAB Show, Wheatstone is introducing SwitchBlade, a WheatNet-IP audio network product that is, according to the manufacturer, "the first product of its kind to combine the power of AoIP logic control with SIP connectivity and codec bandwidth optimization to transport both high-quality programming and the control logic critical for full studio operation between sites."

These remote workflows are driving some broadcasters toward virtualization of studio equipment, again enabled by AoIP. "More of our customers are working on roadmaps that do not include any dedicated audio processing hardware," says Schur. "They are coming to us with specific projects where all processing is done on commercial-off-the-shelf hardware, with the flexibility that virtual machines offer to spin up broadcast channels and assign resources as needed."

Some local news operations no longer have an audio operator, says Letson, "so there's no point in having faders." Responding to that trend, Calrec will show its new VP2 "headless" console at NAB Show, which can be driven by an automation system in a distant city, if desired. "It doesn't have a surface—just some software that you can pick up and control anywhere," he says.

Anderton

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"undesired" sounds, like removing background sounds from on-location recordings. Zynaptiq followed that up with Unfilter, which removes resonance, comb filtering and other unwanted filtering effects to linearize a filtering response, and Unchirp, which removes artifacts from lossy compression. My favorite example of their technology being used for the good of humanity was when Zynaptiq developed a plug-in for Danish TV that suppressed those incredibly annoying compressor horns that fans use at soccer games. On a more prosaic level, their Unmix:Drums can boost or remove drums to a great degree, in real time, from mixed music.

iZotope is another company with expertise in separating out sounds. For example, its RX7 restoration suite can remove pops, clicks, noise, hum and crackles, fix distortion and more. But RX7 now includes a music rebalance feature, with sliders for voice, bass, percussion and "other" (i.e., what's not voice, bass and percussion). It's surprisingly effective, and it may mean the end of asking for "vocals+1" and "vocals-1" masters. You can hear some artifacts with extreme changes, of course, but for rational level changes, you can't hear the effects of the processing.

What makes these types of "deconstruction" plug-ins possible is more powerful digital signal processing, extremely creative programmers and a cross between artificial intelligence and machine learning that can pick out significant audio from noise. This kind of technology is still in its infancy; I can only imagine what products we'll be covering in 10 years.

Craig Anderton's new book series, *The Musician's Guide to Home Recording*, is now available from Hal Leonard in softcover, and on Reverb.com as a series of ebooks. Visit www.craiganderton.com for more.

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Harmonization

(continued from page 1)

world over, regardless of where users are. This would benefit electronic newsgathering (ENG) teams, as well as motion picture, touring theatrical and musical productions (known as Program Making & Special Events, or PMSE), and others, allowing them to cross borders and know their equipment will work without potentially running afoul of the authorities.

The global organization that rules on matters like these is the International Telecommunications Union (ITU), the United Nations' specialized agency on communication and information, which holds the World Radiocommunication Conference every three to four years. Getting harmonization on the event's agenda, however, is itself an elaborate process.

The next conference will be held this fall in in Sharm el-Sheikh, Egypt, and will run nearly a month—a necessity given that the ITU's membership (roughly 200 countries) negotiates internationally binding treaties concerning radio communication at the event. One of the key parts of every conference is the finalization of the next conference's agenda, so while the U.S. wireless mic industry is trying to get harmonization on the docket at this fall's edition, it's not so that harmonization can be decided this year; it's so a decision can be made about whether harmonization would go on the agenda at the following conference, to be held in 2023.

Of course, the ITU wouldn't need to rule on such matters if countries opted to follow each other's lead about what frequencies are allocated for wireless mics, whether on a global basis or even in regional clusters. To some extent, this is already happening, as frequency moves made by the United States in recent times have caused a ripple effect in other parts of the world.

The FCC made significant changes to spectrum use when it auctioned off the 600 MHz band in 2017 and requisitioned the 700 MHz range in 2010 for the use of public safety and some commercial interests. Both ranges were previously used by numerous wireless mic systems, so to accommodate the demand and growth of content creation (that is to say, use of wireless systems), the FCC opened up alternate frequency bands for operating microphones. Most users now fall into the range of 941.5–960 MHz, while bigger events like the Super Bowl additionally use 1435–1525 MHz through a stringent coordination and pre-approval process to protect aeronautical mobile telemetry (aircraft location data), the primary service within that band. Now some other countries are starting to follow the United States' example, clearing wireless microphones out of the 700 MHz range and moving them to alternate bands—but not the same frequencies as the United States.

"Ofcom in the UK is transitioning the 700 MHz band, and in December they chose an alternate band of 960–1164," notes Joe Ciaudelli, director, Spectrum Affairs, Sennheiser. "It is adjacent to the 941.5–960 MHz band that we chose in the U.S., but it doesn't coincide or overlap. Further, in a lot of European countries, their alternate frequencies are 1350–1400 MHz, so you can see that segmentation is taking shape and we need to find at least small pockets of common denominators among countries so that users can take their equipment with them, especially ENG crews. Take natural disasters—when they happen, it's the broadcasters who provide the timely, lifesaving information to the public, and the front end of that communication chain is wireless microphones. Cross-border coordination of ENG operations is critical during life-threatening disasters. You can't go through the logistics of figuring out and organizing different equipment for every country where something may spontaneously happen."

Ciaudelli readily admits that harmonization would benefit wireless mic manufacturers, too, but suggests that it would ultimately benefit end users and allow them to make better use of the spectrum: "Standardization lends itself to an economy of scale, but it also provides practicality, especially for networks and production companies that must cover events in multiple countries, such as global news, elections, conferences, international performing arts tours and sport events like the Olympics. It also promotes more efficient use of the spectrum because harmonization of one service—ENG—often leads to harmonization of other services operating in non-ENG bands."

Not everyone is in favor of harmonization, however. March saw a flurry of dueling letters sent to the U.S. State Department, all trying to influence whether the United States will put harmonization in front of the conference next fall as a potential 2023 agenda item. One missive, with signatories including Apple, Intel, T-Mobile, Boeing and others, suggests that a circulating draft ITU report in support of bringing harmonization to the conference is essentially proposing new or revised allocations for ENG operations in the United States. Conversely, another letter—with signatories from Sennheiser, Lectrosonics, Masque Sound, Turner Sports, PRG, RAD, Clair Global, NBC and other entities, as well as numerous notable FOH engineers, theatrical sound designers, touring musicians and others—states that the report suggests nothing of the sort and is being misinterpreted. The State Department depends heavily on the FCC for determining priorities in terms of the conference; a decision on the matter is expected within weeks.

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Master of the Craft

BY JACQUES SONYIEUX

You may not necessarily know the name Albert Hammond, but you know the music he's written. Songs like "It Never Rains in Southern California," "The Air That I Breathe," "I'm a Train" and many others—performed by artists such as The Hollies, Tina Turner, Celine Dion, Roy Orbison and Johnny Cash—have left an indelible mark on our collective musical consciousness. Hammond, who turns 75 this May, just finished a collaboration with his friend Leo Sayer, and he's still going strong. *Pro Sound News* caught up with the artist to talk about collaborations, songwriting and *In Symphony*, a new symphonic collection of his best-known tunes, recorded at Abbey Road.

ANDREAS WEIHS

Albert Hammond may turn 75 next month, but he says his best song hasn't been written yet.

ON "HEY ST. PATRICK"

I was writing with my friend Leo Sayer last year. He mentioned that it was going to be St. Patrick's Day soon, so I went onto the internet and checked out the story of St. Patrick and became inspired to write a song. We wrote about immigrants, because that's what the story is really about. We made a little demo on a cassette where I was singing lead and Leo was doing the harmony, with a single microphone in the middle of a room. We tried to re-create it in the studio, but the vibe just wasn't there, so we used the original cassette recording and overdubbed a tin whistle, a violin, an accordion and some Irish folk instruments. Some time later I went to play the song in Ireland and I got the audience to sing along with the chorus, so we added that to the song—about 1,500 voices. With today's technologies, it was easy to bring this into the recording and it ended up working just great.

ON STAYING TRUE TO YOURSELF

I don't do this to be a number-one artist or anything like that. I do it because I love it and it makes me a living. I've written songs for Johnny Cash, Roy Orbison, Whitney Houston, Tina Turner, Diana Ross, Julio Iglesias and others. Some of these artists have found me, and other people have taken me to the right place at the right time. It's never been forced, and I never felt like I've needed another hit. One of my fans wrote me a letter and said, "You're one of the greatest songwriters that nobody knows." I keep doing it because I don't think I've written my best song yet, and it might come tomorrow. As long as you keep thinking that way, you're going to keep writing.

ON "IT NEVER RAINS IN SOUTHERN CALIFORNIA"

That song was written back in 1969 on a rainy day in London, and I'd never been to California. I went to see my friend, Mike Hazlewood, who was my writing partner, and I was telling him about how hard it was for me when I first started out. I was 16 and I had tried to make it in Spain and nothing happened. While my friend was in the kitchen making me a cup of tea, I saw this book on the wall called *The Railway to Southern California* and started to sing "On the Railway to Southern California." Mike said, "Did you say, "It never rains in Southern California?" I said, "No, but what a great idea!" So I just wrote the song, which is about growing up and trying to make it; it is about my life and many other people's lives. People would say, "What do you mean it never rains in Southern California? It's raining right now." I'd say, "You've got to listen to the lyrics!"

ON WORKING WITH THE WRECKING CREW

Hal Blaine was an incredible drummer and human being. The Wrecking Crew was unbelievable—I would go in the studio with Hal Blaine, Joe Osborn, Larry Carlton and the others. I would play them the song and never have to tell them what to play; they would get into the groove very quickly. I remember how inventive they were: Hal would say things like, "Let's put three tape boxes on top of each other and bang on it to see what sound it makes." They were not just great players; they were also very creative.

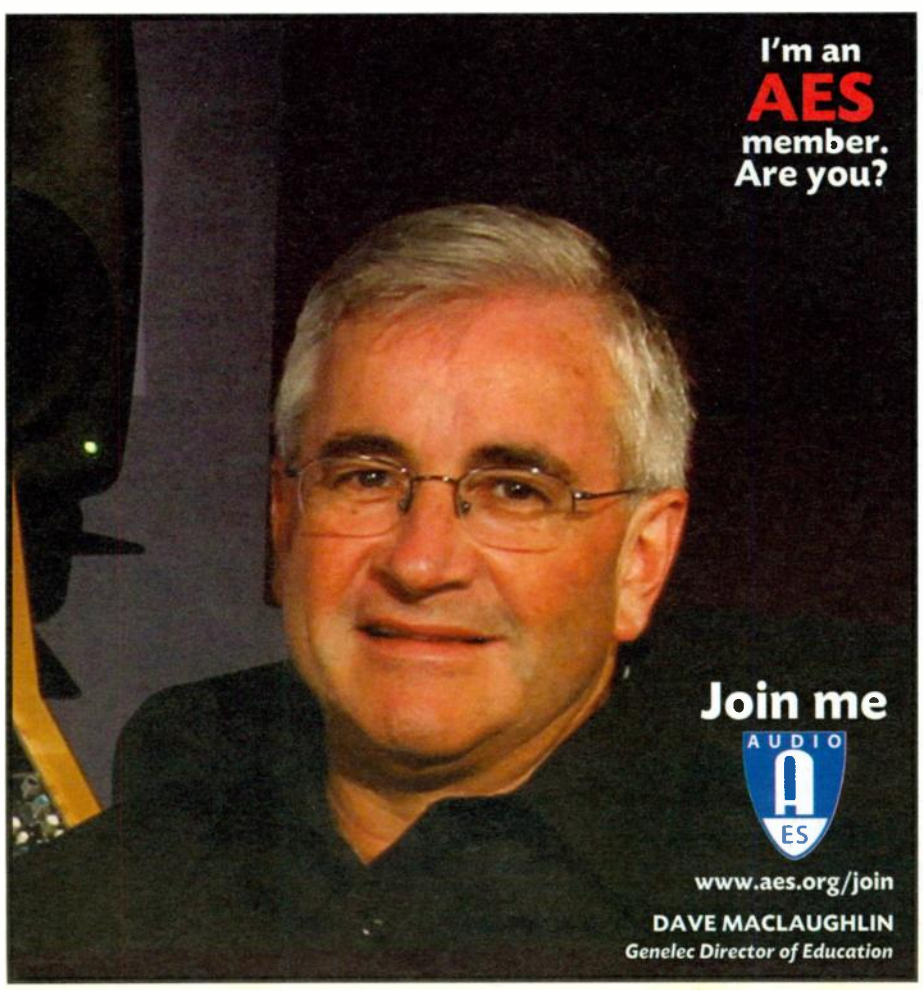
ON *IN SYMPHONY*

I was given the chance to record all my best songs at Abbey Road with an orchestra. Once I got the okay to proceed, I thought of my friend Rob Mathes, who I met when I was inducted into the Songwriters Hall of Fame in 2008. Rob is a conductor and arranger, and I knew he had done George Michael's *Symphonica* and several records with Sting. So I called him up and he agreed to do the project. I said, "Let's just think of what Beethoven would have done with 'When I Need You' or what Tchaikovsky would have done with 'I'm a Train.'" We tried to think of the greats and imagine what these people would have done with these songs. Rob came up with some brilliant arrangements and also helped produce the record. He pulled musicians together from four different symphonic orchestras in London, and they were all smiling during the performances.

ON STAYING FOCUSED

I think I've known what I wanted to do since I was 8 years old. I sang solos in my church choir in Gibraltar where I grew up, and after the service was over, people would come up to my parents and say, "Your son sang so beautifully today." I could see the smiles on their faces. I thought, "If I could do this, it would be fantastic." That was where it all started for me, and I always said, "I'm never going to give this up, no matter what it takes."

Jacques Sonyieux is a devout explorer of recording studios and the artists who occasionally inhabit them. Please send tips or feedback to Jacques at jacquessonyieux@gmail.com.



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